The Builder.

No. CLXXV.

SATURDAY, JUNE 13, 1846.

THE present views of society, with regard to crime, are fortunately different from what they were fifty years ago, although much ignorance and misconception of the subject still remain. A man may commit an offence against the laws, and yet be afterwards a good and useful member of the community: he has yielded once, but may never yield again. It is not contrary to reason to believe, that some amongst the best and most conscientious of men have, at one or other period in their lives, committed an act, afterwards bitterly repented of and atoned for, which, publicly known, would have branded them as criminals in the eyes of the world, and led to their utter ruin under our defective institutions. The fence which separates innocence and guilt is in many cases so slight, and so easily passed, that, but for the sake of example, we should rather pity, than punish, those who unhappily swerve from the right side. Let us ourselves seek earnestly for strength to keep it.

At one time criminals were regarded as all alike, and treated all alike. Moreover, and here was the great mischief, the whole course of proceeding tended to make this assumption correct; and if they did not speedily become all alike,—all as bad as the worst amongst them,—it was not the fault of the system. Something has been done to lessen this dreadful evil, but not enough. How anxiously should our law-givers strive still further to effect improvement.

As regards young offenders, the necessity of some change cannot be too loudly or too often urged: the effects of the present system cannot be contemplated without a shudder by those who feel the value of a soul. Look at the result of the same indiscretion committed by two boys in different walks of life. The son of respectable parents, wanting nothing, and duly instructed as to right and wrong, allowing his stomach to overcome his head and heart, has purloined some sixpences, and is detected;—the case often occurs. A sound whipping, bread and water for a day, and judicious reasoning, suffice to cure while they punish, and make the first offence the last. How different a result awaits the pauper boy who, under stronger temptation, and with less power within to resist it, abstracts a roll from a baker's shop, or wherewithal to buy one, is caught and sent to prison. His fate is sealed. Even if his morals be not entirely corrupted, as is too often the case, a mark is set on him, he is a *thief*, and his life is a course of crime.

We are quite aware that the remedy is difficult; but it is so urgent, that no efforts should be spared to obtain it.*

We have been led to make these observations, by the name which has been given to the structure selected for illustration in the present number, THE MIDDLESEX HOUSE OF DETENTION. The building previously here (erected in 1816), was called the New Clerkenwell Prison. The new building is intended exclusively as a place to retain the *accused* only, and the name has been changed with the hope of, in some degree, preventing the stigma, of having been sent to *prison*, from attaching to those who may be eventually acquitted. There *is* something in a name, and we think this a step in the right direction; steps are taken, too, to prevent the contamination of its inmates by evil association.

The accompanying plan and section (p. 282), with the annexed references, will shew the general form and arrangement of the new structure. The transverse corridor at the foot of the cross is set apart for females, and is separated from the part appropriated to males, by the chapel (shewn in section), and other portions of the building that will be common to either sex. The three arms of the cross which are for males, have at the intersection a hall of octagon form, 53 feet in height.

The length of the male corridors, from east to west, including the central hall, is 224 feet; the width 13 feet, and the height 38 feet. The northern wing is 105 feet in length; and the wing for females measures, from east to west, 153 feet. The rooms or cells for the prisoners, of which there are 286, are 11 feet by 7 feet, and 8 feet high to springing of arch. The apartments for reception, and cells for punishment, are on the basement, and of similar dimensions; there are also others on the ground-floor, and on the basement story are eight bath rooms, two fumigating rooms, two examining rooms, two clothes stores, six punishment cells, a washhouse and laundry, steward's store-room and office, kitchen, scullery, coal and potatoe stores, and four heating apparatus rooms. On the ground-floor, the necessary clerks' offices, reception rooms and solicitors' rooms, governor's and surgeon's, and schoolmaster's rooms; on the one-pair, a large committee room, chapel, and chaplain's room; and these, with the infirmaries, turnkeys' rooms, and four large unappropriated rooms in the female wings, complete the arrangement of the main building. The new governor's and matrons' houses, and entrance lodge, as well as the new eastern boundary wall, shewn on the plan, are included in the present contract with the builder.

The apartments for the prisoners are provided, under the contract, with all the fittings and conveniences contained in those at the model prison at Pentonville (a pan-closet and copper washing-basin); and the contract for the whole of the works, by Messrs. Grimsdell, is 28,684*l.*; all the old bricks and other sound materials being used.

The whole stands on an artificial foundation of concrete, varying from 3 feet 6 inches to 7 feet in thickness. The central portion of the entrance front will be faced with blue lias cement, the remainder of the exterior will be of brickwork. The sashes are to be iron, fixed; the floors formed of asphalte on brick arches, the spandrells being first filled in with concrete.

Considerable pains appear to have been taken with respect to warming and ventilating the building. Mr. Hayden, of Trowbridge, was called in to arrange this, in conjunction with the architect, Mr. Moseley, and Messrs. Cottam and Hallen are carrying out their intentions under contract, for 600*l.*

Fresh air, entering through the culvert near the room C, shewn in section, and warmed in winter by an apparatus, is to be admitted to every cell by means of flues in the spandrells of the arches forming the floor of corridors, and a separate shaft (of 60 inches horizontal area), constructed in the thickness of the wall, and opening near the ground. Pipes of hot water also pass through the spandrells to assist in raising, when necessary, the temperature of the air admitted.

The vitiated air is to be removed by a flue from each cell, commencing near the ceiling. These are gathered into one large flue, passing under the roof over each arm of the building, the size of which is gradually increased in proportion to the number of flues opening into it, and the air is discharged into the central shaft, where there is a small furnace to accelerate the circulation in summer, or at other times, when it may be found sluggish.

The works appear to be progressing very satisfactorily. The walls throughout are now 12 or 13 feet above the ground.

* We cannot avoid alluding here, to Mr. Sheriff Laurie's praiseworthy efforts to establish refuges for discharged prisoners. We trust he will not relax in his endeavours: although there are many difficulties in the way, they are not insurmountable.

THE NEW FOUNTAIN AT BRIGHTON NOT A FOUNTAIN OF HONOUR.

THE new Victoria Fountain on the Steyne, at Brighton, will not redeem our character as designers of this description of ornamental structure. It is tasteless and ugly, and will grievously disappoint all who have read the puffing notices of it, which have slipped into some of the provincial and London papers. On a pile of rock-work in the centre of a large reservoir, are three dolphins standing uncomfortably on their heads, and supporting with their tails (light being seen between them) a basin of the most ordinary design. This in its turn, and according to law, carries a second basin of the same pattern, on a disproportionately high pedestal; and the composition (if we may so mis-use the word) terminates with an equally lanky jet-piece of nondescript formation. The poor fish, wondering how they got into their extraordinary position, look quite ashamed of themselves—fish out of water, evidently—and the effect of the whole is gawky, straggling, and ungraceful. With so many beautiful examples of fountains from France, Italy, and Sicily before them, it seems quite extraordinary that such a perverted reduplication as this should be perpetrated.

The material is cast-iron, bronzed; the cost, including the pipes and laying out the ground around the fountain, about 1,000*l.*

Brighton, generally, is extending greatly on all sides, and improving too. The greatest care appears to be bestowed on the maintenance of roads and approaches, and the external appearance of the town. The esplanade is certainly unrivalled, and will long serve to retain for Brighton the amount of public favour it now enjoys. The sea wall (if so it may be called, as the sea does not reach it), formed of beach concrete, stands well.

On Monday last two extensions of the railway were opened to the public;—one to Chichester, the other to Lewes. The most important work on the latter is the viaduct over the London-road, at the junction with the old line. It consists of 27 arches, the largest of which (crossing the turnpike road) spans 50 feet; the remaining 26 arches, 30 feet each. The first arches, springing from the main line, as we learnt, rest on an embankment of 45 feet and are 20 feet high; they gradually increase in height until they attain an elevation from the road to the parapet, of 70 feet. The arches are semicircular, and rest on piers 5 feet at springing, and 6 feet 6 inches at the bottom. This work was commenced May 18, 1845, and the last arch was keyed March 18, 1846. They are constructed on a very sharp curve, and produce a striking effect when seen from the neighbouring hills. The work is of brick, with a stone balustrade, not yet finished. There will be two stations at Lewes.

On the Chichester line the chief work is the bridge over the Arun. It is made of wood, on which the rails are laid, and extends in an unbroken line over the river, which is here about 60 feet broad. On the approach of a vessel, a portion of the bridge on the Brighton side is moved aside to the right by means of a winch, leaving an open space, and into this space the portion of the bridge over the river is then drawn, also by a winch, and the passage is left clear. The vessel passes; the bridge is again worked over; the side piece is moved into its place; and the rail is complete. Chichester, with its cathedral, will form an important ad-

dition to the list of pleasant jaunts open to the frequenters of Brighton. Lewes, being at a shorter distance, was always in the list; but visitors will now be more numerous. Those of our antiquarian and ecclesiological friends who go there, will find much to interest them, especially if they have with them Mr. M. A. Lower's very excellent little hand-book.

The interesting churches at Shoreham (on the Chichester line), are well known as specimens of Norman work; one of them, namely, that of New Shoreham, has been restored, and we may find an opportunity before long, to speak of them at some length.

PROFESSOR WILLIS ON ECCLESIASTICAL ARCHITECTURE.

On Tuesday, the 2nd inst., Professor Willis delivered his seventh lecture on Ecclesiastical Architecture, at the Royal Institution. Referring to the subject on the last occasion, he explained that the tracery of windows was arranged in several planes, similar to the face of a simple Norman arch. He entered minutely into the history of tracery, showing that gothic architecture had been in use a considerable period before the introduction of that important element. The grouping of subordinate arches with a larger arch, as in the *triforia* of several cathedral and abbey arches of the Norman period, was alluded to, as the first step towards the invention. In most cases these arches were all semi-circular; sometimes the large arch was trefoiled, and occasionally there was another outer arch of pointed form. But in all, there was a space, or tympanum, unpierced, and the next step was to perforate that space with a quatrefoil, or otherwise. Still the principle of window tracery had not been introduced; there was no relation between the several openings, and their mouldings were often different.

The professor said, that the invention of window tracery was one of the most important epochs in the history of the art. The system, as distinguished from the earlier mode, consisted in the use of the same mouldings throughout the window, as though a bar of equal width had been bent into the different ramifications. The earliest example of which we knew the date was in Westminster Abbey; and it might therefore be assumed, that about the middle of the 13th century the principle was first developed. In the earliest examples cuspidation was deficient. Besides the windows in which the cuspidation was secondary, there were some where it became entire tracery; these had often been considered as early examples, but they were, in fact, of comparatively late date. The system of cuspidation originated in the arrangement of arches behind one another.—Illustrative of the difference between the simple perforated spaces of early date and subsequent examples, the professor exhibited a perforated card, one side of which represented the first system, and the other the same openings with the mouldings filled in between.

After some further allusion to flowing tracery, the professor described another system, briefly noticed in the former lecture. Windows of this class were very numerous, especially in country churches; the pattern was a diaper, and it was sometimes called "reticulated tracery." The usual system was here entirely changed; instead of the tracery having an intimate relation with its circumscribing arch, and accommodating its curves to that boundary, it was cut off or intersected by it, without any other modification. Conjoined with this peculiarity was the intersection, or penetration of the second order of mouldings behind the first, a feature which became subsequently almost universal. The first introduction of this tracery might be about 1320, or perhaps a little earlier.—The later styles of tracery were then adverted to, and also several windows of foreign origin, each remarkably different. One style, prevalent in Germany, had been called "stump tracery;" we had nothing like it in England;—the Italian tracery was equally dissimilar, and was marked by great want of relief.

In describing doorways, the professor shewed that the mouldings in early English examples might usually be divided into three orders, or arches. The inner arch was continued to the ground without shafts and capitals, in order that the way might be unobstructed. The model, which he exhibited, shewed, in a very clear manner, the reason of the difference in the form of the arches last mentioned, and that which appeared on the inside. The latter, instead of springing from a low level, had high jambs, and a segmental arch, in order that the leaves of the wooden door might open in the thickness of the wall, which, otherwise, its pointed head would have prevented.—In windows, as in the eastern triplet, externally, we found three distinct openings, placed far apart, whilst on the interior they were united as one composition — the internal faces, called *escoinsons*, being united with shafts (*escoinson shafts*) bearing arches. At the apex of the arch, a deep shadow was gained, and by the form of the jambs, the light was admitted freely from comparatively narrow openings; glass was then expensive, and it was also not unnecessary to consider what might be required for defence; at least, that consideration was the origin of the smaller openings in the Norman style.—The lecturer also exhibited a model of a window of "decorated" date, in which the deep internal splay for the admission of light, and the entire dissimilarity between the arches of the exterior and interior, were clearly shewn. This peculiar construction had at one time, been quite unattended to by architects.—The professor concluded his lecture with some remarks on mouldings, which he traced from their origin in the simple chamfer, and through their greater development in the early English period. He showed that the hollows in early English mouldings were cut so deep that they almost met, and in many buildings the intermediate beads having fallen off from decay, had left a ragged edge, which in some restorations had been pared away, either in ignorance, or to save trouble. In the same way the decayed foliage had been cut out of hollows in jambs and arches. The mouldings of later date were usually less elaborate.

VENTILATION OF THE HOUSES OF PARLIAMENT.

The second Report from the Lords' Select Committee to inquire into the progress of the building of the Houses of Parliament, and to report to the House, was printed on Saturday; the following is the report:—

That the committee have again met, and having examined Mr. Goldsworthy Gurney, as to the best system of ventilation for the New Houses of Parliament, are of opinion, that further inquiries and experiments should be made, under the direction of her Majesty's Commissioners of Woods and Forests, before the final adoption of any plan hitherto proposed for that purpose.

And the Committee have directed the evidence of the said Mr. Goldsworthy Gurney, taken before them, to be laid before your lordships.

The evidence of Mr. Gurney and of Dr. Reid is given in the appendix, and the following are extracts from that of the former:—

"Are you aware of all the plans proposed by Dr. Reid, for ventilating the New Houses of Parliament?—No.

Therefore you do not know what his scheme is, and how he proposes to force a due diffusion of air over all parts of the building?—Except from hearsay, I have no accurate information.

In what manner do you understand that he intends to do it?—By a large upcast shaft, the base of which is to communicate by air passages to the various apartments in the building.

Do you suppose that that is to be assisted by any power either of furnaces or steam power?—I suppose it must be assisted by a blowing cylinder, or a centrifugal fan. Those adjuvants would be unnecessary if the upcast shaft had sufficient power. They are always objectionable, in consequence of involving machinery, and being liable to get deranged. Yet some mechanical assistance must be had; for if this extensive building is to be ventilated by the upcast shaft it must fail. The size of a shaft would be inadmissible, for it will be evident to your lordships, that the whole of the air drawn from the whole extent of the building ventilated must pass through it. This is not all; the whole of the air drawn out of the different apartments, and passing through the shaft, must be raised to the temperature of 500° of Fahrenheit, otherwise it will have no power. That is a very important point; one to which I wish to fix your attention, and explain as clearly as possible. Suppose the buildings of the new houses extend over ten acres of ground; suppose five acres—one half only—occupied by rooms, the sectional area of the five acres of rooms will be, in round numbers, 200,000 feet, accurately 217,600 feet square, which is about the square surface of five acres of ground. Suppose the movement of air to be at the rate of 11 feet a minute, which it must be for good ventilation, the quantity of air discharged must be 2,393,600 cubic feet per minute. Now the whole of this 2,000,000 cubic feet of air must be heated sufficiently high to produce an available power, by the difference in the weight or balance of the internal and external columns. A temperature of 500 degrees Fahrenheit, I believe, is necessary to produce any available pressure (?) The whole of the air must, therefore, be passed up the chimney, and then raised to a temperature of 500 degrees of heat as it passes. This appears to be impracticable. But supposing it possible, the quantity of fuel burnt could never be suffered. On referring to experiments made by myself some years since, I find a pound of charcoal will heat 1,000 cubic feet of air from 60 degrees only to a temperature of 500 degrees. Therefore, if we take this as sufficiently accurate and favourable data, we shall find that we require at least 2,000 lb. of fuel per minute. The impossibility of being able to consume this quantity of fuel is evident; it is not possible to burn this quantity of fuel. To produce practically a discharge of that quantity of hot air, or effect an available power, it must be borne in mind that air raised from 60 degrees to 500 degrees doubles its volume.

You object, also, to the system of ventilating from the floors or sides of the room instead of from the upper portion of the apartments?

Yes; there is a practical objection to this direction, which will be seen by looking at the subject carefully. These retrograde currents, produced from air entering at a low level into a room, are practically very objectionable; they produce an increased rate of evaporation upon the skin, which produces a sensation of cold. Although the temperature of the air in motion itself may be warm—say 70 or 80 degrees—it will produce a temperature very considerably lower on evaporating surfaces. The skin of the human body is essentially an evaporating surface, and suffers much from this law. The feeling of cold in the parts of a room where retrograde or direct currents act, is not due to the actual temperature of the currents, but to the increased rate of evaporation produced by them. Evaporation produced by retrograde currents rapidly absorbs heat. A person cannot get out of the influence of the direct or retrograde currents, if they enter near the floor or at a low level, but if the openings are made in the ceiling or at a high level, then they are mixed with the atmosphere of the room above, and cease or become destroyed before they can possibly reach any one standing on the floor.

Although not evinced by the common thermometer?

Not by the common thermometer, but instantly by an evaporating thermometer.

It does not depend upon temperature, but evaporation?

It is entirely due to the increased rate of evaporation produced by a current of air passing over the surface. It is said, "If you cover the skin with ether, or some other rapidly evaporating substance, you may freeze a man to death in the height of summer." A current moving at the rate of three miles an hour, acting on highly alcoholic ether placed on the surface of a thermometer, will occasion the mercury soon to fall to the freezing point, notwithstanding the current of air may be at 80 degrees. Evaporation where there are partial currents, goes on unequally; there is a feeling of heat out of the currents, and a feeling of disagreeable cold when in them. You cannot get out of them if the entering current is anywhere where it impinges upon the person. This is a great objection to air for ventilation entering a room anywhere at a low level; it must necessarily impinge upon the person.

Will you state what force you propose to apply to set the atmosphere in motion?—I prefer the *vis à tergo* arising from the escapage of high-pressure steam; through proper sized air passages, it furnishes a power capable of

being managed so as to produce at will any rate of current down to almost an insensible breathing. I prefer it, also, in consequence of its great capability of management. When I state that in some experiments which I made ten years since, I raised a column of mercury nine inches by the force of the current of air produced by it, the Committee may see from that fact, that it is capable of producing a force which never can be required for ventilation. M. Arago, in some experiments within the last few months, has raised, by a current of air thus produced, a column of mercury 15 inches. Therefore these facts prove that we have abundant power so as to overcome every opposition arising from wire-drawing or other resistance, and to compel air to pass with uniformity wherever it may be necessary. It is simple in application, and its economy great, though that is not of so much consequence as the former; it is capable of being passed easily and independently to any part of the building separately. You may act by this principle upon groups of rooms, or upon single rooms, or anywhere where it may be convenient; by that means, you prevent the necessity of cutting up the building, or the making of large communications. Another advantage which it will produce, and which though last may not be the least, is, that it is capable of passing a sufficient quantity of air, as much as can be required to produce ventilation, through small passages; which passages may be secured against the communication of flame, in case of fire, on the principle of the safety-lamp. This is a circumstance of great importance where a building is to be made fire-proof. Supposing there are several rooms connected together by ventilating flues, all would be rendered safe and perfectly independent of each other as to fire, by the intervention of diaphriagms of wire gauze, upon the principle of Sir Humphrey Davy's safety lamp. Wire gauze cannot be introduced unless you have great command of power, because you offer by it a strangulation difficulty in the passage of air, which cannot be overcome by the ordinary means of ventilation.

You are aware that Dr. Reid has a plan for collecting the smoke of every fire in the building, and conveying it all through one shaft?—I have heard so.

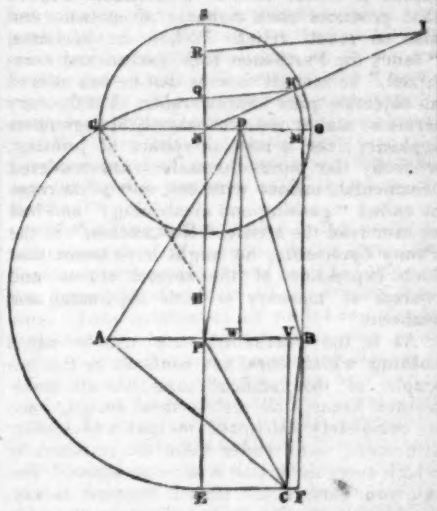
Do you believe that that can be done?—I think it is very difficult.

SOLUTION OF THE QUESTION ON THE CONVERSION OF AREAS.

It is gratifying to find that subjects of a practical and useful character are duly appreciated by the readers of The Builder; it appears that they have had their attention directed to the geometrical *conversion of surfaces*, an example of which was given in No. 168 of the journal, in reference to the development and conversion of the convex surfaces of the right cylinder and cone. The theory, when taken in its whole extent, is a most elegant and important one, and by its aid many thousand practical questions may be resolved with the greatest facility, the solution of which by other methods would be a matter of no easy accomplishment. In fact, the doctrine of the conversion of figures bears a similar relation to the common processes of practical geometry, as that which the theory of fluxions or the differential and integral calculus bears to common algebra. The question proposed in No. 172, by a correspondent who signs himself "A Builder," affords a striking illustration of the utility of the principle; and there can be no doubt but he is aware of the practical advantages to be derived from such a system, and it may be satisfactory for him and other operatives who take an interest in enquiries of this nature, to know, that a full development of the subject, with all its most useful and important practical appliances, will shortly meet the public eye. But to the question.

In examining the proposed data, it appears that there is one side in each aperture of the same length, viz., twenty-eight inches; it will therefore be the most convenient mode of delineation to refer both the triangles to that side as a common base, and so to arrange them that one may lie on each side of it; by this disposition of the given triangles, they are at once reduced to the equivalent quadrilateral figure, ACBD. Through C and D, the vertices of the triangles constituted upon the common base AB, draw the straight lines EF and GO respectively parallel to AB and to one another. Bisect AB in the point P, and through P the middle, and B the extremity of the bisected line, draw EN and FM respectively perpendicular to AB, and meeting the parallels EF and NM in the points E, N and F, M, thereby constituting the rectangular parallelograms EFBP and PBMN, making together the whole rectangle EFMN equal to the given triangular apertures ABC and ABD.

Produce EN, the side of the rectangular parallelogram EFMN, directly forward to any convenient distance, and from the point N in that side draw the straight line NI in any direction at pleasure; then, on NI set off the number 7·1, or some multiple or submultiple of it from a scale of equal parts of any magnitude whatever, and on EN produced towards S, set off NR from the same scale of equal parts, making it equal to the number 2·26, or to the same multiple or submultiple of it that NI is of 7·1. Make NK equal to NM the



other side of the parallelogram NMFE, and join IR; then, through the point K in the straight line NI and parallel to IR draw KQ, meeting EN produced in Q, and NQ will be the diameter of a circle whose circumference is NM. At this stage of the process the solution becomes assimilated to that of the cylinder in No. 168 of The Builder, for the rectangular parallelogram ENMF may now be considered as the development of a cylindric surface, of which the length is EN, and the diameter NQ, the circumference of the end being equal to NM.

Bisect EQ in H, and on H as a centre describe the semi-circle EGQ, meeting MN produced in G; then is NG the radius of the circle required; therefore, upon N as a centre with the radius NG thus determined, describe the circle GSO, and it will be equal in area to the given apertures or triangles ABC and ABD.

Demonstration.—From C and D, the vertices of the triangles to the middle of the common base at P, draw the straight lines CP and DP; then, because AB is bisected in P, the triangles ACP and BCP are equal, for they are upon equal bases, AP and BP, and between the same parallels EF and AB; therefore, the whole triangle ABC is double of the triangle BCP; but the rectangle BFEP is double of the triangle BCP, for when a parallelogram and a triangle have the same base, and are between the same parallels, the parallelogram is double of the triangle; consequently, the parallelogram BFEP is equal to the whole triangle ABC, for things that are double of the same thing are equal to one another.

Again; since, as before, AP is equal to BP, the triangles ADP and BDP are equal, for they are upon equal bases, AP and BP, and between the same parallels, AB and NM; therefore the whole triangle ADB is double of the triangle BDP; but the rectangle BMNP is double of the triangle BDP; for when a parallelogram and a triangle have the same base, and are between the same parallels, the parallelogram is double of the triangle; consequently, the parallelogram BMNP is equal to the whole triangle ADB, for things that are double of the same thing are equal to one another; wherefore, the whole rectangular parallelogram EFMN is equal to both the triangles ACB and ADB.

Because the straight lines IR and KQ are parallel by the construction, the triangles NIR and NKQ are similar, and their corresponding sides proportional; therefore we have, NI : IR : : NK : NQ; that is, 7·1 : 2·26 : : (NM=14) : NQ* $= \frac{2{\cdot}26 \times 14}{7{\cdot}1} =$ 4·456338 inches, true to the last place of decimals. Then, because NQ is the diameter of a right cylinder, of which the circumference is NM, and development ENMF, the straight line EQ is equal to the length of the cylinder, and the diameter of its end extended in the same straight line; and it was shown by a legitimate and rigorous investigation applied to the cylinder, in No. 168, that the radius of a circle of equal area to the convex surface, is a mean proportional between the diameter of the cylinder and its length; but NG, by the property of the circle, is a mean proportional between EN and NQ, the one being the length, and the other the diameter of the cylinder; consequently, the circle GSO, which is described with the radius NG, is equal to the development of the cylindric surface, or to the rectangle ENMF; but we have shown that the rectangle ENMF is equal to both the triangles ACB and ADB; therefore, the circle GSO is equal to the same triangles, and GO is the diameter required.

The above is the solution of the question as required by the proposer; we should, however, consider the process as being incomplete, were we not to accompany it with the arithmetical solution also, both as a criterion of comparison, and for a test of its accuracy; this is necessary, since the principle employed for the conversion of the cylindric surface alluded to above, has been impugned by at least one reader of The Builder; and he must be given to understand that it is no less an authority than Archimedes himself that he is endeavouring to overthrow; for he has beautifully demonstrated the truth of the same principle, in his treatise on the sphere and cylinder; and it is scarcely to be expected, that applying a pair of compasses to a wood-cut on a printed sheet, and comparing the measurements with a carpenter's common rule, will be competent to overthrow the demonstrations of that Prince of Mathematicians; yet, strange to say, such have been the means employed for that purpose.

By the common rules of mensuration, the area of a plane triangle, when three sides are given, is found by *multiplying altogether the half sum of the sides, and the differences between this half sum and each of the sides, and extracting the square root of the product:* or it is found by *drawing the base into the perpendicular, and taking half the product;* and since it is necessary to know the sum of the perpendiculars, or EN, the length of the rectangle ENMF, in order to compare the result with that obtained by the foregoing solution, we shall perform the process in both ways, as the one will serve as a check upon the other, and avoid the liability to error in numerical operations.

For the area of the triangle ACB, the process by the first method, is

Sum of the sides, 34+28+22=84

Half sum of the sides, $\frac{84}{2}$=42.. log. 1·6232439

Differences .....
42—34= 8.. log. 0·9030900
42—28=14.. log. 1·1461280
42—22=20.. log. 1·3010300

Sum of logs. 4·9734919

Area of the triangle ACB=306·7227 square inches. Half sum of logs. 2·4867459

For the area of the triangle ADB, the process, by the first method, is

Sum of the sides, 36+32+28=96

Half sum of the sides, $\frac{96}{2}$=48.. log. 1·6812412

Differences .....
48—36=12.. log. 1·0791812
48—32=16.. log. 1·2041200
48—28=20.. log. 1·3010300

Sum of logs. 5.2655724

Area of the triangle ADB=429·325 square inches. Half sum of logs. 2·6327862

* It may be proper to state, for the greater satisfaction of the reader, that the number 2·26, used in the analogy, is the diameter of a circle whose circumference is 7·1; numbers which express the ratio true to the sixth place of decimals, and differing by less than 2 in the seventh place, and are therefore more than sufficiently accurate for every purpose.

Therefore the sum of these, or the area of both apertures together, is 306·7227 + 429·325 = 736·0477 square inches. From C and D, the vertices of the given triangles, let fall the perpendiculars CV and DW; then, the formula by which to find the segments of the base AB for the triangle ACD, is $AV^2 - BV^2 = AC^2 - BC^2$, and the numerical value of the perpendicular as deduced from this formula, is CV = 21·90876 inches, and consequently the area of the triangle is 21·90876 × 14 = 306·7227 square inches, the same as before.

Again, the formula for the segments AW and BW in the triangle ADB, is $AW^2 - BW^2 = AD^2 - BD^2$, and the perpendicular DW deduced from this formula, is DW = 30·666 inches, and the area of the triangle ADB = 30·666 × 14 = 429·325 square inches, the same as before.

Therefore, if 736·0477 the aggregate area of the triangles be divided by 3·14159, the square root of the quotient will give NG the radius of the circle sought; thus we have $NG = \sqrt{\frac{736·0477}{3·14159}} = 15·30657$ inches.

Now, for the value of NG as deduced from the geometrical method, we have EN = CV + DW = 21·90876 + 30·666 = 52·57476 inches; and by a previous calculation we found NQ the diameter of the imaginary cylinder, to be 4·456338 inches; consequently we get $NG = \sqrt{52·57476 \times 4·456338} = 15·30657$ inches, the same as by the other method, a result which sets the accuracy of the principle of conversion above suspicion, and proves its excellence as a system of geometrical manipulation.

T.

THE FITZWILLIAM MUSEUM.

WINDOW DRESSINGS—RUSTICATION.

Pray, Mr. Editor, if the question be not an impertinent one, what may be your opinion of the Fitzwilliam Museum at Cambridge? By a contemporary of yours, it has lately been made the subject of criticism to some extent, yet in a very weathercock fashion; for a warm eulogy on it, founded upon examination of its specific merits, was immediately followed up, in the very next number of the publication alluded to, by a second article which, though still affecting admiration of the building, was intended to convince us, that every thing which had been pointed out as a particular beauty in the plan and composition, is in reality a defect; and that all that is original in the idea of the façade is decidedly bad. This is blowing hot and cold with a vengeance;—is veering about from east to west with an alacrity truly surprising. Pity that alacrity outstripped both discretion and dexterity; for the slightest degree of the latter would at least have managed matters so as to save appearances, whereas now, it is the publication itself which upsets the criticism it had just before given its readers in its leading architectural article; and what is not least strange of all, it does so with apparent unconsciousness that any such article had appeared, since it takes no notice of it, nor is there any attempt to explain what, being unexplained, looks like egregious self-contradiction. After being voted a very superior piece of architecture one month, the poor Fitzwilliam is blackballed the next, and readers are thrown into perplexity and amazement also, by finding such diametrically contrary opinions delivered from one and the same authority.

Self-contradiction of a different kind is also exhibited in another paper in the same publication, which reprobates in the most unqualified manner, the practice of employing columns and pediments as decorations to windows. "To window-columns," we are gravely told "is attached that sense of the *ludicrous* which is inseparable from diminutive resemblances of things noble and dignified in themselves." Well it may be so; but I would ask the writer how then can he possibly reconcile it to his critical conscience, and it seems to be a very squeamish one, to admire "the *lower* range of windows in the Reform Club-house, as extremely graceful and appropriate," seeing that they also exhibit diminutive resemblances of what constitutes at least one-half of an order, viz., its entablature? If there be absurdity, at any rate bad taste, in putting small pediments over windows, which it is asserted have the appearance of being only "stuck on," does not precisely the same argument hold equally good against small cornices over windows, which we know to be mere decoration, just of that "stuck-on" sort which is so strongly condemned in the other case? If any thing so vulgar as a homely proverb may be tolerated, I should say, "What is sauce for the goose is sauce for the gander." However it may swagger about principles, the criticism that puts window-columns and pediments under ban, yet at the same time tolerates and even admires window entablatures and cornices, is only shallow, one-sided, argument, convenient enough, perhaps, just for the immediate occasion, until its sophistry and shallowness are exposed.

The same circumspect critic denounces rustication as no better than a species of "tattooed masonry." Therefore, it is needless to say, that he has no admiration for the Palazzo Pitti, or the Florentine style generally; or even for that classical mode of rustication, of which we have an example in the façade of Dover House, Whitehall,—a mode that produces such richness of surface, and also so much relief. When he exclaims, "fancy the Parthenon thus gashed and cicatrized," he himself fancies that he has uttered an objection quite unanswerable. Yet the very terms he makes use of show only disingenuous sophistry; for a regular system of jointing, whereby the joints themselves are rendered ornamental, cannot with any sort of fairness be called "gashing and cicatrizing;" and had he ever read the article "Rustication," in the *Penny Cyclopædia*, he might have learnt that such expression of the several stones and courses of masonry is both legitimate and æsthetic.

As to the Parthenon, are we to admit nothing which does not conform to the example of that edifice?—and has all architectural beauty, all architectural design, been so completely exhausted in that and similar structures, as to render them the standard by which every thing else is to be measured? For my own part, I am almost tempted to say, hang the Parthenon, and to wish most devoutly, that it had been blown up altogether by the Venetians in the 17th century. At this you, of course, look grave, as befits an editor; but if I had you *tête-à-tête* with only Burgundy between us, I would soon make you confess, that the Parthenon is made no better than a stumbling-block to us.—Yours, &c.

Budownik.

P.S. Speaking of Barry's *refacciamento* of Soane's building at the corner of Downing-street, the publication above alluded to says, that "the columns are hoisted to their former position on the first floor," although every body who remembers what the building originally was, knows that the order then comprised the ground-floor and a mezzanine over it. Nothing is said as to the manner in which it is now finished up, by the frieze being enriched.

NOTES IN THE PROVINCES.

In the south and west of England, the preservation of the ancient footpaths for the recreation and enjoyment of the public is awakening general attention.——Within the last eighteen months the windows (ten in number) of the ancient flint-built church of St. Peter and St. Paul, Borden, near Sittingbourne, have been enriched with painted glass, at the sole expense of the Rev. Mr. Musgrave, the incumbent, who is also himself the designer.——The works at Osborne (Isle of Wight) are rapidly progressing. The estate is to be inclosed by a paling nine feet high. The new lodge is now occupied, and her Majesty and the Court are expected at the island in a few weeks.——From Guernsey a great deal of granite is now imported, also Caen for kerb stones and repairing roads.——The government, it is said, intend to erect the military station at Birmingham into a grand central depôt, to which most of the troops at Weedon will be removed.——The designs for laying out the grounds, and for the erection of the chapel and lodge of the Church of England cemetery in Warstone-lane, Birmingham, were on view at the Athenæum Rooms last week, but no selection made.——The three public parks at Manchester are to be called Queen's Park, Peel's Park, and Philip's Park.——During the visit of Prince Albert to Liverpool, it is believed he will lodge at Knowsley Hall, the seat of the Earl of Derby; a postponement of the visit till the first week of August has been suggested, in order that the scenery on the Mersey may have the advantage of high water in the river and harbour.——It is rumoured that a Jesuit college is about to be established at Tremeirchion, in Denbighshire.——The foundation-stone of the tower of the northern transept of Leamington parish church was laid by the Rev. Vaughan Thomas, on Thursday week: it is to be about 120 feet in height, the transept itself being carried up to the same height as the present nave, with a large rose window about 30 feet in diameter; the whole of the buildings to be in the early decorated style.——The Cirencester agricultural college is now opened for the reception of students, of whom, when the additional wing now erecting is completed, it will accommodate 200. It is in the Elizabethan style; principal front to the south, with a façade of 190 feet by 50 feet in height, the centre relieved by a tower surmounted at the north-west angle by an octangular turret, the whole rising 93 feet from the lawn. The best mode in use for heating and ventilating is said to have been adopted. Messrs. Daukes and Hamilton, of Gloucester, are the architects; and Mr. Bridges, of Cirencester, is the builder.——The parish church of Wood Enderby, near Horncastle, has been recently repaired at the expense of Sir Henry Dymoke, Bart.——The arrangements for the erection of a new church in the Sneyd district of the parish of Burslem appear to be making satisfactory progress.——Such also is the case with the proposed restoration of Oundle church.——On removing the old oak stalls from the chancel of St. Mary's church, Nottingham, preparatory to repairing the roof, a sculptured tablet of marble was discovered, buried with its face downward, probably since the period of the Reformation. It is a *bas-relief* of the Pope inaugurating a bishop, and is about two feet in height and one in width, and has been curiously painted and illuminated, traces of which are still visible. Several pieces of copper and silver coin, likewise discovered, are chiefly Hanse-town tokens, or Peter's pence.——The Peterborough-bridge repairs are in progress, and it is intended to expend about 200*l.* on the Hail Western Bridge. The Earith Bridge will be opened by the Huntingdon assizes.——The baths at the new water-works at Hull have accommodated 4,843 bathers during the month of May.——From the report of the surveyor of the Lamp and Drainage Commitee at Hull, for the year ending 1st of June, read lately at their annual meeting, it appears that active measures have been taken for the thorough drainage both of Hull and Myton. The greater part of the town can now be cleansed with water from the docks. The total length of new drains in Hull and Myton, completed in the past year, is 1,150 yards; and in Myton 4,000 yards of new paving and 1,800 of new flagging have been laid down. Further improvements are recommended.——It is proposed to erect new baths at Rotherham; the sum of 500*l.* has been voted for the purchase of a site in Westgate.——The marble statue of Southey, by Mr. Lough, for his sepulchral monument in Crosthwaite Church, Keswick, has been completed, and the monument will shortly be erected, but the committee are short of funds.——The Duke of Northumberland's tile manufactory, near Belford, is said to be capable of turning out 1,000,000 tiles in the season. One workman can turn out nine bricks in one minute. Etheridge's patent machine is at work, producing 8,000 tiles, equal to 4,000 tiles and 4,000 soles a day. The drying sheds are calculated to hold 38,000 tiles; and the two kilns, when finished, will contain 20,000 each.——The Edinburgh Water Company, it is said, charges only 4*s.* per annum for water supplied to cottages let for less than 5*l.* per annum, and in some cases only 3*s.* A new college for the professors and students of the Free Church is about to be erected on the Castle Hill. From the report of the Building Committee of the Free Church of Scotland, lately read at their general assembly at Edinburgh, it appears that last year, the number of churches erected amounted to 500, while this year the number was 621, making an increase of 91 since last assembly; but this included those which at that period were in progress of

erection. The amount subscribed up to last report was 317,000*l.*, this year increased to 390,000*l.* The actual income for the past year amounted to 18,729*l.* 4s.; and the outlay for the immediate purposes of the fund, during the same period, was 11,274*l.* 16s., leaving a balance of 7,454*l.*

LONDON PARISHES HAVING COUNTRY BURYING GROUNDS, &c.

Sir,—A few remarks on the above subject, mentioning the few London parishes which have anticipated the dawn of more fitting arrangements, may be a suitable pendant to the article on "Joint Parochial Cemeteries," which you were pleased to insert on the 30th ultimo.

I am glad to be able to say, that some London clergymen, besides laymen, who have seen that suggestion, have decidedly approved it, thinking it perfectly practicable, and not liable to abuses. Whatever might be the best ultimate arrangement, the *fact* is certain, that *hitherto* the majority (I think) prefer the *choked* grounds, with old associations, to the new general cemeteries—thus apparently wishing for "neighbourhood" in burial.

Such a plan also, might be still better suited to very populous places in the country; and might, I think, be available for the "City" of London, changing the divisions of *parishes*, on account of their immense number and small population, for that of "*Wards*." On these subjects, something more may be said another time.

St. Andrew's, Holborn.—This ground, in the Gray's Inn Road, cannot now be called "country," but was much more so at the time of its establishment, upwards of forty years ago. Containing 2¼ acres, it was much curtailed by the erection, eight years ago, of a church *upon the ground*, which church, however desirable or necessary, ought certainly to have been placed any where else. This was not only "robbing Peter to pay Paul," but robbing here much the poorer of the two. 'Tis true the building is vaulted under, but *that* accommodation is for the rich, not the poor. The ground is, I believe, decently kept and managed; but with its closely-crowded old church-yard and great population, this parish must greatly require fresh room.

St. Pancras.—Further removed, towards Kentish town, is the original churchyard of this parish. It is, by additions, very large, (about seven acres); celebrated for the interment of French refugees, and foreigners of rank; and though it can scarcely be called neat, is, I believe, destitute of the abominations sometimes found elsewhere, but still insufficient for the immense population.

St. Giles's in the Fields—immediately adjoining, about four acres, is the most pleasing of all,—though the poor or "cheapest" part, is beginning to be crowded. Having only one scale of fees would remedy this. This ground has many flowery and well-kept graves and tombs, and is well fitted for a contemplative stroll on a spring or summer day, from which a man might return better hearted. The most striking tomb, with cypresses, is that of Sir John Soane. Dr. Buckner, rector of St. Giles' and Bishop of Chichester, an esteemed prelate, who lived to a venerable age, consecrated this ground in 1804. There is a small chapel at the entrance, and a residence for the sexton, or superintendent, who is in deacon's orders and performs the service.

St. Martin's-in-the-Fields, at Camden-town, is little larger, and is respectable, with a small chapel, but the flattest and most uninteresting (at present) of the whole. I have heard that early and private disturbance of bodies occurs here; but as the party asserting it was evidently a profligate character, it is mentioned, hoping it may be known to be false. As this parish has a shockingly crowded ground in Drury-lane, further arrangements may be very desirable.

St. James's (Piccadilly), in the Hampstead-road, about 3½ acres, retired from the road, and not unpleasing. It was established about fifty years ago, and has a spacious chapel (for Sunday duty also), with a good organ and stone turret, containing about 800 persons. This, and St. Giles', are sometimes used by the parish in which they are situated (St. Pancras), and by others. St. James's chapel, &c., may be termed ornamented by the superintendence of the Rev. Dr. Stebbing, not only distinguished in literature, but as one of the best and warmest-hearted Christians in London.

St. Marylebone, at St. John's-wood, has a large entrance chapel, or church, with an Ionic portico and bold turret, containing, however, a bell of petty size, in lieu of a deep toned one. The size is about six acres; the lower part tastefully ornamented, but the upper, or "cheaper" ground is, or was a few years back, very slovenly, with graves half filled, or the boards left in, &c. This parish has a crowded ground, in which the poor are buried, near the old and new churches.

This, omitting suburban parishes, is the whole list, and is sufficiently meagre.

I am, Sir, &c., J. D. Parry.

London, June, 1846.

THE BRITTON TESTIMONIAL.

We mentioned some time ago, that a pamphlet had been distributed amongst the subscribers to the fund raised for this purpose, giving the speeches delivered at the dinner on the 7th of July last, a list of the subscribers, and a statement of the arrangement that had been made. As we had previously informed our readers on all these points, we did not go further into detail. We cannot avoid, however, quoting some eloquent and kind remarks on the pamphlet, from the accomplished pen of the Rev. J. Mitford, which appear in the current number of the *Gentleman's Magazine*, agreeing most cordially with them, as we do:—

"To be born to honours is a happy accident; to achieve them is a noble distinction. Mr. Britton's honourable career is all his own; he has gained his station in life by diligent exertion, by the possession of useful and elegant acquirements, by eminence in his own particular line of study, by general intelligence in other branches of science and art, by a love of literature, and by a generous and liberal assistance to those employed in pursuits congenial to his own. To his labours the architecture—and particularly the ecclesiastical and domestic architecture of the country, is deeply indebted for the restoration of what was decayed, and the improvement of what was defective." "There are, however, still higher qualities belonging to our nature, than those of mere intellectual excellence, and greater endowments than those of scientific acquirements. Mr. Britton is justly endeared to his friends by the virtues of his heart, as well as valued by them for the cultivation of his mind. Whoever is acquainted with him must be pleasingly impressed with the simplicity of his manners, the kindness of his address, and the open, candid, and generous expression of his feelings. The humble writer of these few lines has every reason to be proud of the honour conferred by his friendship, as he willingly confesses the advantage he has derived from his knowledge and attainments. Mr. Britton has enjoyed the enviable privilege of friendly and familiar intercourse with some of the most eminent persons of his age; and we can say that many who, like ourselves, originally came to him for advice and instruction, soon felt anxious to cultivate a more familiar acquaintance, and to make private friendship be the happy result of professional reputation. The names which appear in the list of subscribers before us, afford an ample testimonial of all that we have said. They extend through all classes, from the peer to the professional artist, and by their extension they stamp a more authentic value on their approbation. Such a band of friends any man may be justly proud of; and we trust that in Mr. Britton's mind and feelings, the present public evidence of attachment will shed a bright and genial lustre over the shadows of advancing age, as they are slowly and gently closing on a long and honourable and happy life." To which with perfect sincerity, and great cordiality, we say, amen.

College at Hong Kong.—The magnificent sum of 10,000*l.*, it is said, has been contributed; one-half towards the erection of a college at Hong Kong, and the other half towards the endowment of a bishopric there.

The Croydon Atmospheric Line has been put out of condition by the hot weather affecting the valve.

THE IRON TRADE.

Notwithstanding the opinion entertained at the beginning of the quarter, that the prices could not be maintained, the iron trade has continued much as it was. The orders on the books for engineering purposes were so great, coupled with the expectations arising from projected railroads, that the masters determined on maintaining the prices declared at the last series of district meetings, and they have done so, and are now, in fact, congratulating themselves on their resolution. Two weeks ago, it was the intention of some of them to blow out a number of furnaces, in order that they might keep the supply fully within the rates of current demand. Now there seems to be a confident expectation amongst them that even an advance on the present high prices may be proposed at the next meeting. The great difficulty, however, has been to *maintain* the present prices; and that done, many of them are satisfied, as they well may be. The general belief, at all events, is, that the orders on hand will enable them to withstand any *reduction* at the next meeting. "If the American tariff," says the Birmingham correspondent of the *Morning Herald*, "which our last advices from that country left lying on the table of the Senate, had not been interrupted in its progress by the Mexican war, there can be no doubt we should have every reason to look forward to a great advance in the price of iron. At present the duty on sheet iron imported into America out of this country is 56 dollars. The proposed new tariff would reduce it 14½ dollars, which, at the present cost of iron in this country, and freight, &c., would enable the American manufacturers to have good Staffordshire iron for about 15*l.* a ton in place of some 25*l.*, which it now costs in their own country. In the absence, however, of this great impetus, and knowing the state of our own market, I have no difficulty in saying there cannot be any further advance of prices."

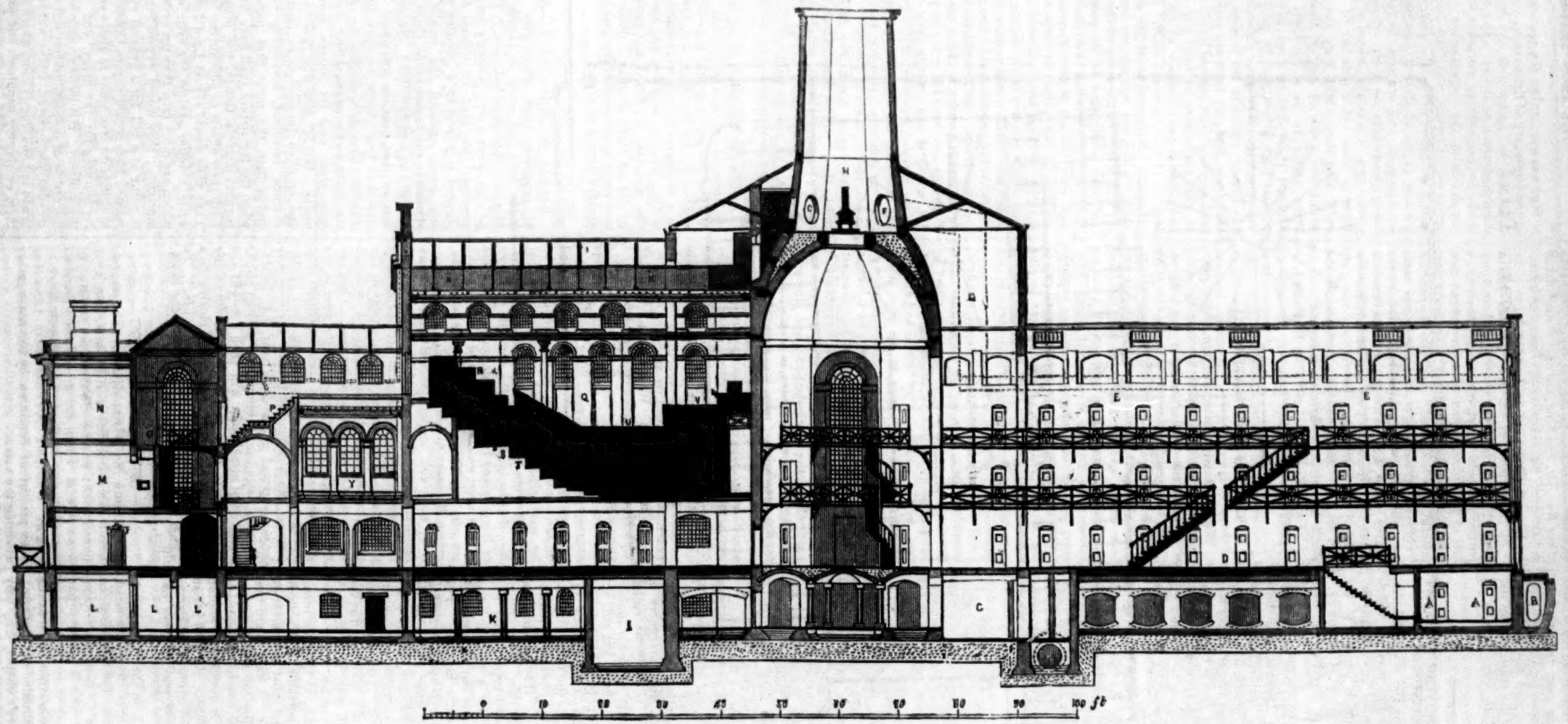
On the other hand, the *Mining Journal* thinks that, "unless some extraordinary political or commercial event, which cannot be anticipated, takes place during the next two months, the present prices will, in all probability, be maintained—in Staffordshire, at least."

At Glasgow the prices of pig-iron are much the same as our last quotations. On the 6th of June the prices quoted are—69s. for No. 1, and 65s. 6d. for No. 3, per ton, net cash. Sales to a moderate extent were effected last week at 69s., 67s. 6d., and 68s. 6d., for No. 1; 65s., 66s., and 64s., for No. 3, net cash, and at 70s. by bill at three months—dealers not at all anxious to operate—market closed dull—but no decided decline to report

Spread of Knowledge.—At a meeting of delegates from mechanics' institutes in union, held last week at Huddersfield, Lord Morpeth, who presided, said, "That although politics were very properly excluded from meetings like that, he trusted he might be allowed to advert to a question which had of late much agitated the public mind. He alluded to the repeal of the Corn Laws. And why did he mention that? Because he trusted that as that question was about to be finally settled, it would leave an open stage for other questions that must succeed it. The repeal of the Corn Laws might bring more wheat for man, more oats for horses, more maize for cattle. But for men who spoke and reasoned, and enrolled themselves as members of mechanics' institutes, something more was required than the meat that perisheth. And when the legislature shall have done its part as regards material things, the people must put forth their efforts to educate the immortal soul. Then they would expect Lord John Russell to write a letter against the evils of ignorance, which are more fatal than the evils of fever and mortality; they would expect Sir Robert Peel to bring in a bill for a general system of education; they would expect Cobden and Bright to agitate for free trade in slates and primmers, for learning for the many, and literature for the millions. His lordship then enlarged upon the utility of mechanics' institutes, and recommended his hearers, whilst supporting them, to add to knowledge virtue, which would ensure them everlasting happiness and peace."

MIDDLESEX HOUSE OF DETENTION.—(Section from North to South.)*

Mr. MOSELEY, Architect.



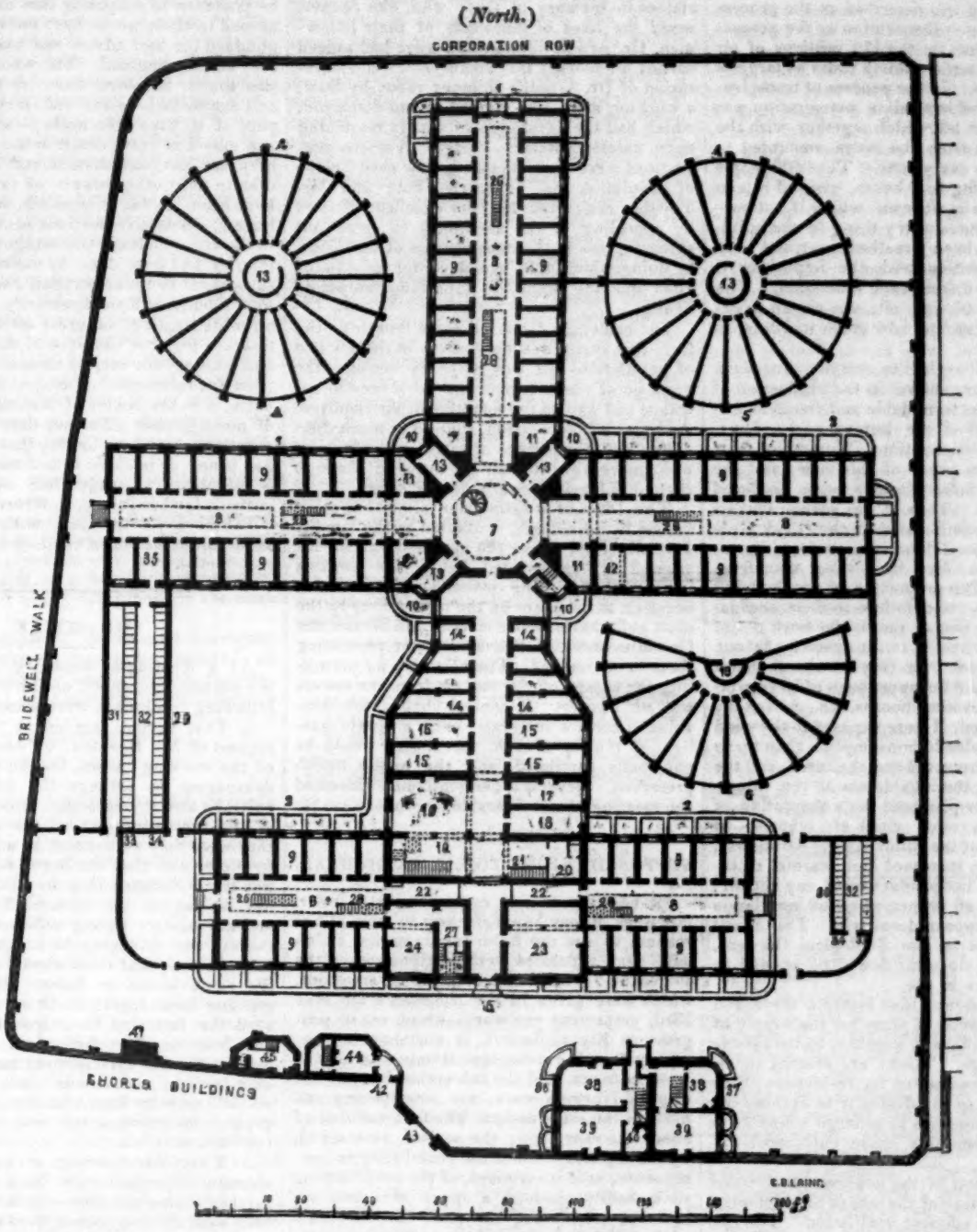
References to Section.

A Punishment cells.
B Area.
C Apparatus room.
D Level of ground-floor paving.
E Course of foul-air flue.
F Entrance for foul air from side and centre male wings.
G Entrance for foul air from side male wing.
H Stove for accelerating ventilation.
I Heating apparatus room. K Kitchen.
L Steward's store-room and office.
M Female keepers' room.
N Keepers' room. O Female wards.
P Passage from female wards to seats for females in chapel.
Q Chapel. R Seats for females.
S Passage to divide sex.
T Seats for males.
U Inclosure to passage of male prisoners to their seats.
V Officers' pews.
W Pulpit.
X Flue for collecting impure air from female wards, in central shaft.
Y Committee-room.

* See p. 277, in present number.

HOUSE OF DETENTION.—(GROUND PLAN.)

(*North.*)



References to Plan.

1. Male wings.
2. Female wings.
3. Juvenile wing.
4. Exercising yards for Males.
5. Ditto ditto Juveniles.
6. Ditto ditto Females.
7. Central Hall.
8. Corridors.
9. Cells.
10. Area.
11. Store.
12. School-master's room.
13. Officers.
14. Reception cells.
15. Solicitors' rooms.
16. Officers' mess.
17. Governor's office.
18. Surgeon's room.
19. Magistrates' staircase.
20. Washing-room.
21. Stairs to steward's department.
22. Entrance passages to female wings.
23. Clerks' office.
24. Female reception room.
25. Front entrance.
26. Stairs to basement.
27. Stairs to ditto of female department.
28. Stairs to one pair.
29. Visiting places for males.
30. Ditto ditto for females.
31. Passage for friends.
32. Ditto for officers.
33. Friends.
34. Prisoners.
35. Entrance to visiting-places.
36. Governor's house.
37. Matron's house.
38. Dining-rooms.
39. Drawing-rooms.
40. Study.
41. Dead house.
42. Wicket gate.
43. Entrance gates.
44. Porter's lodge.
45. Present lodge.

ROYAL INSTITUTE OF ARCHITECTS.

VENTILATION.

At a meeting held on the 8th inst., Mr. Tite, vice-president, in the chair, the foreign secretary, Professor Donaldson, communicated the death of Monsieur Vaudoyer, architect of Paris, an honorary member of the Institute. Monsieur Vaudoyer, by his publications and his works, has rendered good service to his art.

The Very Rev. the Dean of Westminster, Dr. Buckland, being present for the first time since his election as honorary member, was introduced to the meeting, and offered his acknowledgments.

Sir Thomas Deane, architect, from Ireland, being introduced as a visitor, laid before the meeting a set of drawings illustrative of the Abbey of the Holy Cross, at Tipperary, made by Mr. Woodward, and invited English architects to visit his country, where much would be found to interest them. In this abbey there were several peculiarities; no two windows were alike: the apex of the label moulding round the window heads, terminated in some instances in a sculptured head. The most striking point, however, was the occurrence of a raised platform in the centre of the south transept, known in the neighbourhood as the still "waking bier," and on which bodies were placed before burial. Amongst other peculiarities in Irish building, Sir Thomas Deane mentioned a label or drip at Kilmallock, where over each joint a pedimental stone was placed for protection, and produced a novel feature in the design.

An address on ventilation was then delivered by Mr. Joseph Toynbee, F.R.S.

Mr. Toynbee introduced the subject by stating, that during the whole of his professional career he had almost constantly been attached to public medical institutions, and that he had slowly become aware of the existence of an enormous amount of disease in the human race. A large share of this disease was incurable when once produced, but he was in a position to prove that it could be wholly prevented. He therefore felt that it was the duty of medical men while they devoted themselves to the cure and palliation of disease, also to exert themselves in behalf of preventive measures. In the performance of this duty he had investigated the sources of disease, and he found that one of the most fertile, was a want of a due supply of air in dwellings and public buildings. With this conviction he had accepted the invitation to deliver the present address, although he was conscious how little he was able to do justice to its subject.

In speaking on *the necessity for ventilation*, it was shewn that 10 cubic feet of air, or a volume double the size of the person breathing, is required, for the purposes of respiration and transpiration, every minute. The circulation of the blood was described as the process of carbonization. Respiration as the process of decarbonization in the 170 millions of air cells, forming a surface thirty times as large as that of the skin. In the process of transpiration, the so called insensible perspiration was continually given off, which together with the vapour expelled from the lungs, amounted to two fluid ounces every hour. Thus 500 people in a church during two hours, give off fifteen gallons of water into the air, which if not carried away, saturates every thing in the building after it has been breathed over and over again in conjunction with the impurities it contains collected from each individual. The use of lamps, gas, and oil, was shewn to deteriorate the air and to add much moisture to it.

The effects of neglect in carrying out plans for ventilation, are shewn in the production of three of the most formidable and frequent diseases which affect the human race,—fever, scrofula, and consumption. Numerous facts were adduced in proof of this view, and the way in which these diseases were produced was pointed out. Thus, it was shewn, that all those who were immolated in the Black Hole of Calcutta, who did not perish from immediate suffocation, died in a short time from putrid fever. The proportion of people dying of consumption who follow in-door occupations, is double that of those who work out of doors; and it increases as the space for labour is more contracted. Dr. Guy has shown that it is more common in the upper parts of large establishments, as printing-houses, &c., where the air is most vitiated. Towns exposed to the wind are much less liable to consumption than those which are well protected and sheltered, and the goitre afflicting the inhabitants of the valleys of the Rhone is produced by a stagnation of air. Instances were cited of schools, in which the mass of the children were scrofulous, and to whom an increased diet, warmer clothing, &c., were not productive of any benefit; and by the aid of proper plans of ventilation the disease disappeared entirely. This result has taken place in the Zoological Gardens, Regent's Park, since the new dens opened to the air have been in use.

It was then shewn, that hitherto there had been a total absence of plans for the supply of pure air in a sufficient quantity, to the abodes of human beings. Towns are erected in localities wholly unadapted for residences; they are constructed so as effectually to exclude the air, and often increase to so large a size as to be rendered from this cause only, most unhealthy.

The last portion of the address was devoted to the consideration of the means to be adopted for securing an efficient ventilation. The example set by nature ought to be followed, and the gentle changes produced by the wind should be as much as possible imitated. The great principle is, to admit into rooms and houses a large quantity of air at a moderate temperature (60° to 65°); and that there should be an outlet for the vitiated air. The pure air to be admitted within three or four feet of the floor, and to be warmed by aid of the fire-place. The various plans for warming the fresh air were examined, and their errors were found to have been, that a small quantity was admitted through a narrow channel, and at a temperature much too high, so that its nature was deteriorated. The subject of warming abodes was also alluded to; and it was shewn, that from the bad mode of construction of stoves and fire-places, and from improper materials being used, the smoke was not consumed, ventilation was rendered impossible, and the greater part of the heat dispersed up the chimney. Mr. Toynbee was happy to say, that he had recently examined some plans about to be patented by a gentleman who had devoted a long life to the subject, and had brought to it great chemical and practical knowledge, in which these evils would be remedied, and important advantages gained.

In speaking of the means for insuring the egress of the vitiated air, it was stated, that as its temperature on escaping from the mouth is between eighty and ninety degrees, it rises to the upper part of the room, from which there should always be a means of escape. Dr. Arnott's valve had been generally used for this purpose, and thousands of people will be indebted to its use for their lives and health. If it were the custom of this country to erect statues in memory of those who, like Jenner, *saved* the lives of thousands of their fellowmen, Dr. Arnott in manifold ways had indeed earned for himself this distinction. A modification of Dr. Arnott's chimney valve, by Daw, a working man, was alluded to and displayed, which had the advantage of always remaining open, unless voluntarily closed. Various suggestions were made, shewing how easily plans of ventilation may be carried out; and Mr. Toynbee concluded his very excellent address by appealing to the architects to carry out efficient plans in the construction of buildings, by doing which they would confer unbounded good upon the public, by improving the public health.

The chairman dwelt at some length on the fact, that there was no mystery in the science of ventilation—all was perfectly simple—the great point was to proportion the means of entrance and exit to the quantity of air required. As regarded decoration, there was more difficulty; the appearance of valves was offensive, and, moreover, the air in drawing through them left black lines around the edges.

The Dean of Westminster alluded to some houses in Edinburgh, ventilated by the late Sir John Robison, where the means of exit for the vitiated air was provided behind the cornices in every room.* The reverend gentleman took occasion to comment on the injury done by the open gully holes in our streets, and blamed the Commissioners of Sewers for not permitting them to be trapped. The necessity for permitting the escape of the bad air from the sewers was no answer. If central shafts were provided at certain intervals, with a single gaslight at the top of each, the sewers would be effectually ventilated, and the public health preserved. Several other gentlemen addressed the meeting at considerable length.

SUPPOSED INJURY TO ELY CATHEDRAL.

In addition to our correspondent's letter, last week, it may be satisfactory to some of our readers to see the following remarks, which have been addressed to the *Athenæum* on the subject:—"The author of some observations, which were given in the *Athenæum* for May 23rd, respecting the works which are in progress in Ely Cathedral, is mistaken in supposing that the octagonal termination of the western tower, and the sub-arches beneath the original Norman work, are cotemporary and parts of the same design. The first was erected about the year 1386; the second were added, by Bishop Gray, about the year 1460; in consequence, as it is surmised, of the tower having sunk bodily through a space of nearly six inches,—occasioning the most extensive ruin of the adjoining wings of the western transept; of which the northern was taken down and the southern (which has been recently opened and restored) was left in a very dangerous state,—the crown of every arch being ruptured and dislocated; and one of the principal pieces, and much of the arcading and ashlaring, completely separated from the rubble filling of the wall. As the Norman piers of the tower are cased with new and very perfect masonry, it is impossible to speculate upon the state to which they were reduced by this subsidence; but the magnificent Norman zigzag arches, which are now partially (to the extent of about three feet in depth out of ten) exposed to view, are perfectly sound, there being only one considerable crack discoverable in them, occasioned by a partial twisting in the settlement of the south-western buttressing turret of the great tower. If any proof were wanting of the confidence of the builder of the sub-arches, in the stability and strength of the Norman arches above them, it would be found in the loose rubble filling,—which was, in three cases out of four, left between them, and which alone has been partially removed in the works which are now in progress.

It may be very readily admitted that the public have a just right to demand, in all works which are executed with a view to the restoration and stability of the great monuments of our ecclesiastical architecture, not merely extreme caution, but also the application of the most matured architectural and engineering skill and experience. We believe the correspondent of the *Athenæum* of the 23rd May, to be mistaken in supposing that the parties concerned in these works have not sought for and obtained the best advice and assistance which they could command. The whole structure of this tower has been most carefully studied and examined;—plans and sections of every part of it have been made;—and the course and extent of every crack in the structure (and they are less considerable and less dangerous than in most other towers of this description) have been, as far as possible, scrutinized and traced;—defective portions of it (particularly in the stage beneath the octagon, where great injuries had been done by unskilful additions subsequent to the restoration), have been carefully rebuilt with solid masonry, and boarded; a timber framing, of great strength, designed to brace together the sides of the tower, which had become not merely useless but injurious, from the rottenness of many of its essential parts, is in the course of restoration to a state of much greater efficiency than it ever before possessed:—and we believe that no precaution has been, or is likely to be, neglected, which is calculated to secure this noble structure, without further injury, to future ages."

We have yet to learn, with certainty, that an architect *has* been employed, and who the architect is.

* One of these houses, we remember, is fully illustrated in "London's Architectural Magazine."

THE STRIKE.

At a meeting of master builders, held at the Portico, Liverpool, on the 3rd of June, the following resolutions were passed:—

1. That having acceded to the benevolent request of Mr. Rushton, to meet a deputation of the working classes, for the purpose of endeavouring to arrange the differences that existed, and it appearing, from the assertion of the representatives of the workmen, that they were duly authorized to adjust those differences, and that the bar to such adjustment was the declaration that they did not, or would not, belong to the General Trades' Union; and the masters having withdrawn that declaration, and it having been agreed upon, in consequence, that work should be resumed on the same terms as before the srrike, this meeting feels regret in being obliged to record the fact, that the stipendiary magistrate has been most unfairly and uncourteously dealt with, the arrangement most dishonourably broken, and it was made manifest that no faith can be kept with those who have at present the management and the conduct of the Masons' Club.

2. That this meeting is more than ever strongly impressed with the opinion, that no further communication whatever should be held with the delegates of the clubs; that concession has now reached its utmost limit; and while they are willing to receive their workmen on the same terms as heretofore, they utterly repudiate the principle of club interference between the buyer and seller of labour; and they again pledge themselves to resist such unwarrantable interference; and,

3. That this meeting now considers it a solemn duty, looking at the amount of individual suffering, as well as of local inconvenience, that is likely to result from a renewal of the strike, to call upon all the public bodies, as well as private individuals, to aid them in putting down a combination which repudiates its own acts and assertions, which keeps no faith, and which is exercising a most arbitrary influence over hundreds of workmen who are anxious to proceed with their work, and which, if not checked, must tend still further to increase the misery, destitution, and general inconvenience which are now so severely felt.

The Raising Machine in the General Post Office.—The new machine for raising and lowering the letter-carriers and bags, which we described some time back,* appears to be somewhat uncertain in its operation: a recent accident has led to a partial prohibition of its use. Surely there can be no real difficulty in rendering its operation steady?

* See page 37, ante.

WESTMINSTER COURT OF SEWERS.

At a court, held on Friday, the 5th inst., Mr. Leslie in the chair, the collectors presented their accounts, and the clerk reported, that of the gross amount of the rates on the various districts, 46,617*l.* 13s. 3d., the sum of 39,116*l.* 7s. 9d. had been collected, and there were 7,501*l.* 5s. 6d. uncollected. The clerk further reported the treasurer's account, from which it appeared, that there were in the banker's hands a cash balance of 13,373*l.* 18s. 8d. —Orders on the bankers were signed for 372*l.* 14s. 1d.

Sixty petitions were then presented to the court, for 8,453 feet of new sewers, at the expense of the various applicants, and 461 new house drains.

Fifteen tenders were presented to the court for the supply of 500 gully grates. Messrs. Cottam and Hallen's was declared the lowest, and their tender was accepted. Tenders for 30,000 radiated bricks were then received. Messrs. Rutty and Verey were the successful competitors. A further order for an additional 150,000 was given, subject to the sanction of the next court, at the same price, 40*s.* per thousand delivered.

Thomas Rowe was elected fourth clerk of the works, *nem. con.*

In consequence of the great increase of business, the clerk and surveyor were ordered to look out for a person well qualified to discharge the duties of a builder's clerk, at a salary of 2*l.* per week, and report to the next court.

*** The largeness of the amount belonging to the commission, constantly reported as being in the banker's hands, excites the surprise of some of our readers. We will inquire into it.

RAILWAY JOTTINGS.

The project of transforming the Regent's Canal into a railway has become void in consequence of the required amount not having been subscribed; so that the 5,000*l.* deposited as caution money by the committee of the proposed scheme has become the property of the Regent Canal Company.——The Eastern Union line, which was opened on Tuesday week, for the conveyance of goods, cattle, and parcels, will be opened on the 15th for passengers. General Pasley inspected the whole line on the 4th instant. The most noticeable works appear to be the bridge erected over the deepest part of the cut, near Brantham, and consisting of five arches of 30 feet span each; and the embankment crossing the two tidal and navigable forks or branches of the Stour upon wooden viaducts, intercepting a piece of land, where the formation of a wharf and dock has been suggested. The completion of this line is exciting much interest in Suffolk, and the Ipswich people take great credit to themselves for their exertions in securing its formation. The fares between London and Ipswich are to be 15*s.*, 10*s.*, and 5*s.* 8*d.* —— The London and Birmingham Grand Junction, Midland, and Northern Railway Companies, have made arrangements for the conveyance of newspapers at a charge one-half that for parcels, provided the charge for a single package be not less than one shilling. The London and Birmingham Company require that the packages shall contain "newspapers only," and that they shall have authority to open and examine them whenever they have reason to believe that this regulation is infringed.——Excavations have been made for the Lincoln railway station, which is to have a Grecian portico. The contract is for 21,700*l.* ——The line of electric telegraph between the metropolis and Leeds will be completed in the course of the summer, when seven minutes will suffice to convey intelligence between the two. Even at present the communication reaches to the Midland station at Normanton, and the late division in the House of Lords was announced at Leeds about nine in the morning. ——The South Devon line from Exeter to Teignmouth was opened on the 30th of May. It is a single line of broad gauge, intended to be worked on the atmospheric principle but opened in the meantime for the convenience of the district as a locomotive line. Twenty miles of pipe are on the ground, but the stationary engines are not ready. The line commences at the Exeter terminus of the Bristol and Exeter Railway. The Exe is crossed by a pile bridge, and the line is carried over a street upon arches. At Dawlish, it is carried over a viaduct of granite under which is access to the beach. There are five short tunnels between Dawlish and Teignmouth, the intervals being protected by double sea-walls. At Star Cross the line passes quite through the water. The electric telegraph is completed to Teignmouth.—The railway speculators at Exeter are said to have pledged themselves to schemes amounting to 11,000,000*l.* ——On the 4th inst., Lord Redesdale presented petitions to Parliament from about 5,000 railway passengers, one of them signed by sixty-nine ladies, complaining of the inconvenience occasioned by the break of gauge. ——By a Parliamentary return printed on the 4th instant, it appears that out of 588 private bills applied for during the present session, for which a subscription contract has been deposited in the Private Bill-office, 514 were railway projects. There is a very good summary to this return, from which it seems that the estimated expense of the 588 undertakings is 265,842,386*l.* The capital stock is stated at 258,370,860*l.* and the money authorized to be borrowed 94,270,561*l.* The expense of the various railways, out of the sum set forth is, 259,329,450*l.*; the capital stock, 254,050,760*l.*; and the money authorized to be borrowed 90,472,095*l.*——"Of the 530 bills before Parliament at the beginning of the session," says the *Railway Chronicle*, "370 have, up to Whitsuntide, been finally disposed of, leaving 160 still before the Committees."

Summary of Bills granted.

	Miles in length.	Capital.
106 for England..	2,384½	....£59,411,462
62 for Scotland..	853¾	....£14,983,110
42 for Ireland...	970¼	....£12,063,000
210 Grand totals..	4,172½	£86,457,572

Of the above 210 there are—

New, or Independent Companies.....	61
London and Birmingham (Branches, Extensions, &c.).....	5
Grand Junction.....	8
Great Western (broad gauge).....	10
Midland and York and North Midland..	20
Eastern Counties.....	4
Manchester and Leeds.....	5
South Eastern.....	7
South Western.....	5
Brighton and Croydon Companies.....	6
Caledonian.....	15
Edinburgh and Glasgow.....	19
Glasgow and Ayr.....	6
North British.....	4
Edinburgh and Northern.....	8
Aberdeen.....	2
Eastern Union.....	3
Norfolk.....	2
Great Grimsby and Sheffield.....	5
Ipswich and Bury St. Edmunds.....	1
Great Southern and Western of Ireland..	8
Midland Great Western of Ireland.....	2
Cork and Bandon.....	1
Belfast and Ballymena.....	2
Dublin and Kingstown.....	1
	210

Earl Fitzwilliam, in the House of Lords, on the 5th inst., moved an order to the effect that the third reading of no more railway bills be agreed to, until the whole of the bills now under the consideration of Parliament be brought up. As his reason for introducing the resolutions in question, his Lordship alleged the ill success of the Government plan for winding up the affairs of the railway companies. The Earl of Dalhousie, Lord Kinnaird, and the Duke of Wellington objected to the resolutions, as the working of the Government measure had not been sufficiently tested; but all admitted that some modification of the standing orders, with the view to repress railway speculation, was absolutely necessary. The resolutions, however, were finally withdrawn.——The House of Lords (select committee on bills) have unanimously decided in favour of the London and York line.

Waterloo Bridge.—At the half-yearly meeting of proprietors held last week, the disbursements were shewn to be equal to the receipts, and, of course, no dividend was declared. The bridge has not been purchased by any railway company.

COURTS IN LIVERPOOL.

It would be very desirable to consider whether, in our circumstances, it would not be better to abolish courts altogether, and to take down as many houses as might be needful to convert them into short streets, opening at both ends into wider streets. There are besides, moral objections to courts, which we do not think have been sufficiently considered. A small court is a separate community, and its inmates must have a certain influence either for good or evil upon each other. The bad example of one family must necessarily influence others; and respectable people are obliged to consort with those whom they cannot esteem, but whom they cannot avoid. And when we consider how large a proportion of the female sex, industrious mothers of families, are condemned to spend their whole lives immured between the blackened walls of those narrow and pestilential localities, never, perhaps, seeing the sun shine into their houses, and knowing nothing in the wide universe but its miseries, it is enough to make the heart sick. And what must the reality be? Let our readers, especially our female readers, try to realise this. Let them consider at the same time, that these poor women are not only cut off from every intercourse with objects of natural beauty, but that they very generally spend their short lives in ill health, with their children sickly and dying around them; and all this because building land is valuable, and cannot be *sacrificed*. It certainly is valuable, for human sickness, and sorrow, and death, are counted light in comparison, while all the moral evil produced in the living, is equally disregarded. How many a respectable woman, by reason of familiarity with such scenes, has passed through all the downward phases of filth, bad habits, and drunkenness, to confirmed vice! The fact is notorious; and indeed it could not be otherwise, constituted as human nature is. We would for these reasons abolish courts, unless they were differently constructed from any we have in this town.—*Health of Towns Advocate.*

SELF-SUPPORTING VILLAGE SOCIETY.

On Wednesday week, the first meeting of the members and friends of this society, established in connection with the Church of England, was held in Exeter Hall. The Hon. W. Cooper, M.P., presided, and was supported by the Lord Bishop of Norwich, Lord John Manners, M.P., &c.

The first resolution, which affirmed the necessity of making some provision for the labouring classes, having in view their temporal and spiritual interests, was moved by the Lord Bishop of Norwich. The undertaking, his lordship thought, was a feasible one. It was mentioned to him in the first instance, by Mr. Morgan, the projector, and he was deterred from connecting himself with it in consequence of the similarity which he thought it bore to the plan adopted by Mr. Robert Owen, the socialist, in Hampshire; but he became convinced of his error, and was now persuaded that the scheme was eminently calculated to serve the interests of those for whom it was designed. Mr. Morgan's calculation was, that 45,800*l.* would be required, in order to build and furnish cottages for 300 families, with church, workshops, infirmary, &c., and that 15,000*l.* would suffice to purchase 1,000 acres of land. The village would be under the direction of a committee. The returns would yield 2½ to 3 per cent.

Lord John Manners, M.P., in seconding the resolution, made reference to Freiderickstan, in Holland, formerly an entire morass, but reclaimed through the combined exertions of a class of labourers placed there to try the experiment. He also cited a case of a similar character in Flintshire.

The resolution having been adopted, Mr. Morgan and several other gentlemen addressed the meeting, and subscribers to the new society were enrolled.

Commencement of New Buildings.—If architects will not take the trouble to inform us when "first stones" are to be laid, they ought not afterwards to complain of our omitting to mention the ceremony.

New Books.

Hand-book for Mapping, Engineering, and Architectural Drawing. By B. P. Wilme, C.E. &c. Weale, 1846.

The want of such a work as this has long been felt, both by teachers and pupils; it will be welcomed by a large class of persons, and found of the greatest service in every engineer's architect's and surveyor's office. The following selection from the contents will shew the comprehensive nature of the work:—

Examples of map details.—North points—Borders for plans, &c.: map drawing, map engraving, map writing, designs for titles, designs for trees from nature, hill shading, conventional signs, railway plans and sections; geological diagrams and sections; alphabets, with rules and examples of the mode of constructing them; architectural drawing, shewing also the method of colouring different materials; flourishing, examples of; colours; specimen plate of map drawing, exemplified in lithography, and example of surveyor's field book. It well deserves an extensive sale.

The annexed extract may be serviceable to some of our readers:—

Instruction for Zincographing Plans, Sections, and Drawings.

"Transfer a tracing of the drawing to be zincographed on to a zinc plate properly prepared for drawing on—the transfer is to be made in a manner precisely similar to that employed for lithographing. Having transferred the tracing, take off the latter, and with a perfectly clean silk handkerchief remove the superfluous red chalk which will appear on the plate—draw in the lines and other parts in precisely the same manner as on stone. In drawing on zinc be careful not to breathe on it, and keep it at all times in a dry place; the least damp has a tendency to corrode the metal, when the drawing would be spoiled. Great care is requisite to keep the surface of the plate free from dirt, even the fingers must not be allowed to touch it, or those places where they are allowed to rest, will be rendered quite unfit for use. It is a very good way to keep so much of the plate as is not actually being worked on covered up. If spots of ink or grease should accidently find their way on to the plate, they may be removed by rubbing such places with a little clean turpentine, and a piece of blotting paper. Zincography has much to recommend it in preference to lithography, as regards its use for plans and sections. It is not an invention of as long standing as lithography, and although the use and treatment of the zinc plate in the hands of the draughtsman is perfectly as simple as that of stone, yet with the printer the case is different. Printers in general have not had as much experience of zinc printing as they have had of stone printing, consequently there are fewer available zinc printers; this will not long be the case, for experience teaches us that zinc is the preferable material for railway plans and sections and for all works of magnitude requiring speed in the execution. Its extreme portability and cheapness are its principal recommendations. It is much easier drawn on than stone. It is a difficult matter to use the drawing pen without a ruler on stone, the surface being polished there is a liability to slip; but the zinc being grained, the grain very much resembling drawing paper, the drawing pen lays hold of it, and crooked or straight lines may be drawn with as great facility as on drawing paper. Drawing on zinc is very destructive to the drawing pen. It will be necessary to set the pen about three or four times a day to insure always drawing fine lines. The best drawing pen to use for drawing on zinc is Hawkin's Everlasting Pen."

Egypt: Temple of Dendera.—A late letter from Cairo (May 17th), written, by an intelligent traveller, to the *Literary Gazette*, after describing the interest he felt in a Nile voyage to and from the second cataract, informs us that the Temple of Dendera has been completely cleared of all the rubbish with which it was encumbered, and is now to be seen as one of the most perfect of the Egyptian temples.

The Battle of the Gauges.—The Board of Trade have reported on the gauge question. They find themselves unable to remedy the serious evil already existing, as they see no *just* way of compelling the entire reduction of the 7 feet gauge. With some few exceptions the narrow guage is to be hereafter employed uniformly.

Drainage of Camberwell.—Some alarming reports are in circulation, as to the spread of typhus fever in this locality, through the defective state of the drainage.

Miscellanea.

Brilliant Whitewash.—As the season has arrived, when every consideration of cleanliness and health prompts to the use of lime upon buildings, fences, &c., we give the following recipe for preparing the celebrated stucco whitewash, used on the east end of the President's house at Washington; colouring may be so added as to give any desirable tinge to the preparation:—"Take half a bushel of nice unslacked lime; slack it with boiling water, covering it during the process to keep in the steam. Strain the liquor through a fine sieve or strainer, and add to it a peck of clean salt, previously dissolved in warm water; three pounds of ground rice, ground to a thin paste, and stirred and boiled hot; half a pound of powdered Spanish whitening, and a pound of clean glue, which has been previously dissolved by first soaking it well, and then hanging it over a slow fire, in a small kettle, within a large one filled with water. Add five gallons of hot water to the whole mixture; stir it well, and let it stand a few days covered from dirt. It should be put on quite hot; for this purpose it can be kept in a kettle on a portable furnace. It is said, that about one pint of this mixture will cover a square yard upon the outside of a house, if properly applied. Brushes, more or less small, may be used, according to the neatness of the job required. It retains its brilliancy for many years. There is nothing of the kind that will compare with it, either for inside or outside walls."—*New York Sun.*

Boydell's Patent Hinges.—Mr. James Boydell, of the Oak Farm Iron-works, has just obtained a patent for improvements in the manufacture of hinges, both iron and brass. The first improvement consists of casting hinges, with the pivots on which they turn, in one piece: in order to accomplish this, one flap is cast, provided with a suitable core in the shoulder to receive the pivot on which the hinge is to work; after this flap is cast, and the cores removed, the other flap is cast upon its edge in such manner that the two exactly fit, and the fluid metal entering the core in the first flap, forms the necessary pivot. The second improvement consists in a mode of casting brass hinges, when separate pins or axes are to be applied, after the flaps are cast; they are cast on cores not going quite through at one end, and with a little projection at the other — so that, when a pin of the proper length is introduced, the excess of metal is beaten down and filed off, and the pin is completely inclosed. The third improvement consists in casting the flaps for several hinges in one piece, and then dividing them. In casting flaps for hinges it has been usual to have a separate mould for each flap, although several moulds are made in the same box; but the patentee proposes to cast a length of—say, six for instance—with projections on the mould to form grooves, where they are to be divided—so that each hinge can then be broken off, and finished by grinding. A fourth improvement consists in annealing cast-iron hinges in coke ovens.—*Mining Journal.*

The New Highway Bill.—Considerable opposition is manifested throughout the country to the new Highway Bill, now before Parliament. The objectors assert that surveyors of highways, appointed under the existing system, are more competent to discharge the duties of the office than any comparative stranger could be; in consequence of their local knowledge—that it is the interest of the present surveyors to employ the poor of their respective parishes—that the proposed change would take the management of parish matters, and parish monies, out of the hands of the parishioners—that it would be attended with increased expense, which country districts are ill able to bear—and that it would be unjust towards parishes which have been well managed, to make them pay for the negligent management of others.

Metropolitan Improvements.—A Government bill has just been brought into the House of Commons to enable the Commissioners of Woods and Forests to construct a new street from Spitalfields to Shoreditch, and for that purpose to raise a sum of 120,000*l.* on the "Metropolis Improvement Fund."

Skelton Church, Yorkshire.—Mr. Ewan Christian, architect, is about to publish a complete illustration of this peculiarly interesting example of the early English period.

Special Supervision.—The following extract seems to shew that the ants have architects, if not official referees:—"A wall had been erected, with the view of sustaining a vaulted ceiling, still incomplete, that had been projected towards the wall of the opposite chamber. The workman who began constructing it, had given it too little elevation to meet the opposite partition upon which it was to rest. Had it been continued on the original plan, it must infallibly have met the wall at about one half its height; and this it was necessary to avoid. This state of things very forcibly claimed my attention; when one of the ants, arriving at the place, and visiting the works, appeared to be struck with the difficulty which presented itself; but this it as soon obviated, by taking down the ceiling, and raising the wall upon which it reposed. It then, in my presence, constructed a new ceiling with the fragments of the former one."—*Huber.*

Glastonbury Cross.—Glastonbury is rich in architectural beauty; the ruins of its abbey are justly regarded as among the most beautiful in England, and are carefully preserved. It is with much pleasure we learn from the *Great Western Advertizer*, that the inhabitants are about to rebuild, in harmony with the peculiar features of the town, the High Cross at the intersection of the streets, on the foundation of the old Market Cross, removed A.D. 1806. Workmen are now engaged in opening the ground, and the foundation-stone is to be laid by Mr. Thomas Porch Porch, who has paid marked attention to procuring the best possible plan for the building. The Cross will be about fifty feet high, composed of Bath stone, and highly ornamented throughout.

Railway and Metropolitan Improvements.—Under this head the current number of the *Westminster Review* has a very interesting article containing several important suggestions, deserving the attention of our readers.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing Week.

Monday, June 15.—Statistical, 12, St. James's-square, 8 P.M.

Tuesday, June 16.—Linnæan, Soho-square, 8 P.M.; Civil Engineers, 25, Great George-street, 8 P.M.

Wednesday, 17.—Society of Arts, Adelphi, 8 P.M.; Geological, Somerset House, 8½ P.M.; British Archæological Association, Western Literary Institution, Leicester-square, 8½ P.M.

Thursday, 18.—Royal, Somerset House, 8½ P.M.; Antiquaries, Somerset House, 8 P.M.

Saturday, 20.—Asiatic, 14, Grafton-street, 2 P.M.

TENDER.

For Ely Corn Exchange and Poultry Market:—

Freeman, Ely	£1,900
Peck and Son, Cambridge	1,882
Bullock and Co., Cambridge	1,882
Sugars, Lynn	1,800
Newham, Lynn	1,726
Legge, Ely	1,644
Oats, Cambridge (accepted)	1,500

NOTICES OF CONTRACTS.

[We are compelled, by the interference of the Stamp Office, to omit the names of the parties to whom tenders, &c. are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 3, York-street, Covent Garden.]

For the execution of Contract No. 2 on the Dereham and Lynn line of railway, commencing at the termination of Contract No. 1, in the parish of Marlborough, and terminating at Swaffham, being a length of 5½ miles; comprising the usual works of excavation, embankment, bridges, culverts, &c., together with a station-house at Swaffham.

For the execution of the several works to be done in building an additional wing on the men's side of the Kent County Lunatic Asylum, Barming-heath, and making other alterations.

For the erection of a new barrack, &c., for officers, at Portsea, for the Board of Ordnance.

For the repairs of the roads over, and at the ends of all, or any one or more, of the following Hereford County Bridges for three years, viz.:—Parsons Pole, Buckton, Criftin Ford, Burrington, Kinsham, Arrow Green, Brookend, Aymestrey, Deerfold, Lye Pole, Stoney-street, Dilwyn, two at Irington, Hall of Gosford, Mortimer's Cross, Rossell, Combe, Rodd, Monkland, Broad Bridge, Orleton, Half of Cumberton, and Stoke Lacy Bridges.

For the erection of a warehouse on the east side of the basin at the Gloucester Docks.

For the erection of a warehouse adjoining that last mentioned.

For a supply of British iron for the East-India Company.

For the erection of a parsonage-house and offices at Talland, near Looe, county of Cornwall.

For the construction and erection of a gas-holder of 80 feet diameter, with columns, girders, &c., for the Commercial Gas Light and Coke Company, at Stepney.

For the excavation and construction of a gas-holder tank, 81 feet in diameter, for the last-named company.

For the erection of new transepts and chancel for Lye Waste Church, Stourbridge.

For re-roofing and altering Lye Waste Church, Stourbridge.

For the excavators', masons', bricklayers', carpenters', joiners', plumbers', plasterers', slaters', and painters' works required in the erection of schools in Darley-street, Leeds.

For the erection of gas works for the town of Wetherby.

For a supply of ironmongery for the East-India Company.

For the colouring and whitewashing of the Lock Hospital, at Liverpool.

For the erection of new markets, &c., in the parish of St. Ann Shandon, Cork.

For repairing that portion of the post-road from Cork to Dublin, between Draddy's-hill and Knock-horgan Chapel, all in the barony of Cork.

For 5,000 gas-meters of the best quality and most approved construction for the Dundee New Gas Light Company, to be delivered in equal weekly portions during the months of July and August next. The tenders must state the dimensions of, and the quantity of gas capable of being registered by, the respective meters (prompt.)

For lime-washing all the rooms, wards, offices, and privies belonging to the Coventry Union Workhouse, and for repairing the plastering where requisite.

For supplying the River Clyde Navigation Trustees with British timber for one year, from 1st July next.

For supplying the trustees last named with iron and steel for six months, from 1st July next.

For supplying said trustees with nails and shovels for one year, from 1st July next.

For supplying said trustees with iron castings for six months, from 1st July next.

For supplying the same with lead and plumbers' work, oils and paint, &c., for one year, from 1st July next.

For the execution of the whole works of the Campsie branch of the Edinburgh and Glasgow Railway, commencing at a point near the Kinkintilloch station, and terminating near Campsie or Lennoxtown, a length of 5¼ miles or thereby.

For the erection of a store at Clare, Ireland.

For the erection of a market-house in the town of Drumkeeran, county Leitrim, Ireland.

For the erection of a manse and offices at Chirnside, N. B.

For the erection of a toll-house at or near the Cross Roads Tavern, near Carmarthen, for the Carmarthen District Road Trustees.

For the erection of a toll-house at Cenarth village for the same trustees.

For the erection of a toll-house at the end of Carmarthen bridge for the Commott's District Road Trustees.

For the erection of a toll-house at or near Parky-box, Kidwelly, for the trustees last named.

For the erection of a toll-house at or near Wernddu, in the parish of Llanegwad, for the Llandovery District Road Trustees.

For the erection of a toll-house at or near Cwmduad, for the Carmarthen District Road Trustees.

For the erection of a toll-house at or near Dafan Bridge, near Llanelly, for the Commotts District Road Trustees.

For the erection of a toll-house at or near the village of Llanon, for the district trust last named.

For the erection of a toll-house at Penybont, near Lampeter Pont Stephen, for the Llandovery District Road Trustees.

For the various works proposed to be done in the repairs of the Union Workhouse, near Hertford.

For the masons', carpenters', slaters', plumbers', and plasterers' works of a dwelling-house and farm-offices to be erected at Tullich, on the estate of Suddie, in the parish of Knockbain, Ross-shire.

For the excavation and construction of certain tanks, &c. at Spon-end, connected with the Coventry Water-works.

For the building of the National Schools at Great Waltham, near Chelmsford (extension of time).

For either putting the present mill, belonging to the Commissioners of Drainage for the parish of Runham, in the county of Norfolk, into sufficient repair, or for erecting an engine to be driven by steam or wind of sufficient power effectually to drive a water-wheel of not less than 16 feet diameter, with scoops 15 inches wide. The land to be drained consists of about 300 acres.

For providing and laying down in the parish of Stowmarket, 700 yards, or thereabouts, of curb-stone of the following dimensions:—Scotch granite, 12 inch by 7 inch; York stone, 9 inch by 7 inch (prompt).

For 250 tons of Guernsey granite, lumps for breaking, and also for such further quantities as may be required previous to the 29th day of September next by the Board of Guardians of the Poplar Union Workhouse.

For the erection of a church at Dudley.

For painting the exterior of the three workhouses and children's establishment belonging to the Stepney Union, and situate respectively at Mile-end, Ratcliff, Wapping, and Limehouse, either in one or several tenders.

For the several works contemplated by the trustees of St. Nicholas' Church, Great Yarmouth, in the reparation thereof, and by the committee of subscribers in the restoration and repewing of the same.

For the repair of 672 perches of the road and lanes in the town of Ennis, not to exceed 3s. 6d. a perch.

For the repair of 3,442 perches mail-coach road, from Limerick to Ennis, between Newmarket-bridge and Cratloe Police Barrack; not to exceed 6s. 6d. a perch.

For the repair of 328 perches mail-coach road, from Ennis to Limerick, between Frost's, at Cratloe, and Lanadownbridge; not to exceed 5s. a perch.

For the repair of 867 perches mail-coach road, from Ennis to Limerick, between Latoon-bridge and Newmarket-bridge; not to exceed 6s. a perch.

For painting the workhouse of St. Thomas's Union, Exeter.

For building the first pair of houses at Aden-grove, Stoke Newington.

For the erection of certain additional buildings to the Malling Union Workhouse, Kent.

For the execution of the several works to be done in building an additional wing on the men's side of the Kent County Lunatic Asylum, Barming Heath.

COMPETITIONS.

For a design for a building proposed to be erected at the corner of North John-street and Dale-street, Liverpool, for the Royal Insurance Company, No. 1, Oldhall-street there. A premium of 50*l.* for the best plan, unless the designer is employed as the architect in erecting the building. A premium of 20*l.* will be given for the next best plan. (Time extended).

The royal medal will be given for a design for a building, suitable to the purposes of the Royal Institute of British Architects.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the New Inn, Gravesend: 200 large and 300 smaller oak trees, 1,000 oak spires, 30 ash and 12 elm trees, 350 hornbeam trees, birch, &c.

At the Horseshoes, Lower Hardres: several tons of oak, ash, and beech timber; also sundry lots of unmeasured oak and tops, &c.

At Gloucester: a stock in trade, comprising an assortment of well-seasoned Spanish and Honduras mahogany and rosewood, in plank and veneer; birch, beech, and pine in log, fitch and board, &c.

At Southampton: a 1½ horse-power high-pressure vibrating engine, with metallic piston, boiler, &c., complete; an 8-feet lathe, a 6-feet ditto, and a quantity of engineering tools.

At Bishopwearmouth: in suitable lots, a stock of timber deals, and stones.

At Leeds: a stock in trade, comprising 13 turning-lathes of various kinds, 16 pairs of vices, with anvils, grinding-machines and stones, bellows, tools, benches, &c.

At Copie, near Bedford: a quantity of oak timber.

At Liverpool: the materials of ten cottages.

At the Lower Grove, Myland, Colchester: about 140 oak trees and 114 oak standards.

At Whitby Wood, Birdbrook, Essex: a quantity of oak, ash, and elm timber and topwood.

At Upton Lovell, near Heytesbury: a portion of a stock in trade, comprising oak, ash, and elm plank and board, useful old building material and slabs, wagons, ladders, shafts, axles, &c.

At Airthrey Castle, near Allos.—N.B. A large quantity of larch wood.

At Great Hadham and Standon, Herts: 1,800 larch firs, 22 oak, and 15 ash trees, with hurdle stuff, ash poles, &c.

At Knockbain, Rosshire: about 69 acres of Scots fir and larch timber, suitable for deals, scantlings, railway railing, &c.

At Radwinter, Essex: 107 oak timber trees.

At the Debden Hall Estate: 600 larch, and 200 spruce fir trees, 100 oak saplings, &c.

At Inverary: sale of wood postponed.

At Shelley and Layham, near Hadleigh: 100 cherry-trees, several very large elms, 10 butt ends of black Italian poplar, &c.

At East-street, Manchester-square: a builder's stock in trade, lease, and business.

At Suffolk-street, Rotherfield-street, Islington: six substantially-built carcasses, in a forward state of completion.

At Wanstead: 400,000 stock and place bricks.

At Wapping, High-street: a stock of ironmongery, two steam-engines, seven pair forge-bellows, 13 tons bar-iron, two tons steel, chain-cables, stoves, ranges, nails, hinges, locks, &c. &c.

At Oxford-street: 50,000 feet of Spanish and Honduras mahogany, several tons of rosewood, many hundreds of deals, battens, planks, &c. &c., an assortment of oak, beech, ash, elm, sycamore, &c. &c., with a variety of saws, screws, trade utensils, &c.

TO CORRESPONDENTS.

"*Asphalte Varnish.*"—A correspondent wishes to know if any preparation is desirable "on planed Baltic deal wood, for the application of asphalte varnish."

"*Rex*" would find some useful hints in "Ricanti's Rustic Architecture." We will endeavour to write to him.

"*D. J. J.*"—Mr. Barlow's paper is not yet printed.

"*X.*"—We quite agree with our correspondent in his view of the importance of giving the jointing of gothic work in our illustrations, and strive to do so when practicable. We shall probably print part of his letter.

"*An Owner.*"—Inquire at the Office of Woods and Works.

"*Foreign Plate Glass.*"—Mr. A. wishes to know the principal importers.

"*Paddington Workhouse.*"—An inhabitant of Paddington wishes to express his dissent from the course pursued by the guardians.

"*Constant Reader*" (Northwich).—It is difficult to say how near to the window the building may be placed without fear of consequences. Adjoining owner would have to prove his injury by stoppage of light and air. Something would depend on the use made of the room in which the window is. As to garden wall, we should raise it without hesitation.

"*Subscriber, ab initio,*" "*Clericus,*" and "*Country Gentleman.*"—With every disposition to oblige correspondents, we have not time to reply to such wholesale questioning.

Received.—"H. M. P.," "H. B. S.," "J. B.," "J. C.," "R. Y.," "A Carpenter."

Books received.—"Hints to Landowners, on Tenure, Prices, Rents, &c. By Barugh Almack, Land Agent." (Longman & Co.) "Critical Dissertations on Professor Willis's Architectural History of Canterbury Cathedral. By Charles Sandys." (J. Russell Smith, Compton-street). "Principles of Gothic Ecclesiastical Architecture. By M. H. Bloxman, Eighth Edition." (Bogue, Fleet-street). "Patent Journal, No. II." "The Railway Register, for June."

**** Correspondents are requested to address all communications to the EDITOR, York-street, Covent-garden.

ADVERTISEMENTS.

NEW DELABOLE SLATE QUARRY COMPANY.

THE Public are respectfully informed that the whole of the Shares in the above Company are taken up, and that a MEETING will take place, at Two o'clock, on Wednesday the 17th, at the office of Messrs. BULLOCK and LESCOMBE, 39, Lincoln's Inn Fields,—but those parties who have been promised Shares, may still be allotted a limited number from those reserved for the Trade.—Apply, before Monday evening, to the managing Agent, Mr. C. S. RICHARDSON, 5, Whitefriars-street, City.

FIRE BRICKS.

WARD, Honduras Wharf, Bankside, and St. Michael's-alley, Cornhill, has just landed a large quantity of his very superior manufactured Fire Bricks, of Stourbridge, Welsh, and Newcastle. Prices very low. Shipments made for the East and West Indies, &c., with the greatest promptness. Gas companies, engineers, builders, and all large consumers supplied from ships in the river at a much lower price. A very large stock on hand of Bricks, Lumps, Tiles, and Clays.

River sand and gravel by freight to any wharf and dock.

TO BUILDERS AND CARPENTERS.

A Considerable saving will be effected in the purchase of IRONMONGERY, by applying at F. R. WILLIAMSON'S Wholesale Warehouse, No. 31, Chiswell-street, Finsbury-square, near Whitbread's Brewery

Best Patent Cut Clasp.

3d. 4d. 6d. 10d. 20d.
5d. 7d. 8d. 1s. 6d. 2s. per 1000.

Best Sheet Cut Floor Brads 12s. per cwt.
Best Town Glue 40s. per cwt. Do. Scotch 42s. per cwt.

Best Patent Sash Line.

1 2 3 4 5 6
4s. 3d. 5s. 6s. 6d. 7s. 6d. 10s. 12s. per gross.

Elliptic Stoves, 3d. per inch. Registers, 6½., 7d., 8d. per inch. Self-acting Kitchen Ranges with Oven and Back Boiler. Wrought Bars and Bright Fittings.

2 ft., 2*l.* 3s. 2 ft. 6 in., 2*l.* 12s. 6d. 4 ft., 4*l.*

Lists of Prices had on application at the Warehouse; if by letter prepaid, inclosing postage stamp.

TO ARCHITECTS, BUILDERS, &c.

RHENLY & Co., WHOLESALE IRONMONGERS, and MANUFACTURERS of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.

Strong Self-acting Kitchen-Ranges, with back Boiler and Oven, and Wrought Bars:—

3 ft. 3 ft. 3 in. 3 ft. 6 in. 3 ft. 9 in. 4 ft.
3*l.* 6s. 3*l.* 13s. 3*l.* 16s. 4*l.* 4*l.* 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft. 3 ft. 3 in. 3 ft. 6 in. 3 ft. 9 in. 4 ft.
8*l.* 8*l.* 15s. 6*l.* 8s. 6*l.* 10s. 7*l.*

Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

IRON-WORK FOR BAKERS' OVENS.

F. A. TIDDEMAN, Purfleet Wharf, Earl-street, Blackfriars, keeps an assortment of Stocks, or Mouth-pieces; Plates, Furnace-bars, Top and Fall Pieces, Stoppers, Chimney-bars, Inside, Outside, and Ashpit, Doors and Frames, Boilers and Frames, Lamps, &c. &c.; all of the best description, at very moderate prices. —CAST-IRON UPSETS.

HENDRY and GLOVER, IRON-FOUNDERS, beg to inform their customers that they have removed their Foundry (from Smart's-buildings) to CHARLES-STREET and 160, DRURY-LANE, where they have adopted every improvement to enable them to compete successfully in quality, price, and punctuality. They have also an extensive and well-arranged stock of patterns for every description of Castings.

PAPER-HANGINGS.

BUILDERS and DEALERS may be supplied with Paper-hangings of every description from a large stock of the best manufacture, at very low prices for cash, by HORNE and ALLEN, Paper-hanging Manufacturers and Importers, 41, Gracechurch-street, London.—N.B. Any papers made washable at One Penny per yard extra. Also, a stock of French Papers always on hand.

TO PAPER-HANGERS, HOUSE-DECORATORS, BUILDERS, SHIPPERS, &c.

JOHN TODD MERRICK & Co., having removed to their new Manufactory in New Oxford-street, take the opportunity of soliciting the inspection of the trade to their extensive stock of paper-hangings, comprising every variety, from the cheapest to the most costly and elegant drawing-room patterns. They also invite attention to their complete assortment of decorations, suitable for every description of room; and beg to announce that they are now ready to receive orders, furnish estimates, and enter into contracts in any situation, and to guarantee the execution of them in the first style.

J. T. M. and Co. wish particularly to state that they will execute any French pattern that may be brought to them, fully equal in quality, at the same price that can be purchased in Paris, thereby effecting a saving of the duty and carriage to the purchaser. They have recently imported a most complete assortment of French patterns.

TO BUILDERS, PLASTERERS, AND OTHERS.

JUST IMPORTED from Rouen, a quantity of FRENCH PLASTER OF PARIS, and now lying in Handham's Warehouse, Thames-street. The whole (about 10 Tons) will be sold at 30s. cash.—For further particulars, apply to Mr. HAMMILL, Topping's Wharf.

PLASTERING LIME, that may be used immediately without risk of blistering, manufactured expressly for Plastering, and sold at the usual price, at FORREST'S WHARF, Earl-street, Blackfriars. Sheds for the slacking and mixing of lime. Accommodation for loading and landing bricks, sand, ballast, &c.

TO ARCHITECTS, BUILDERS, & BRICK MAKERS.

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street

TO CIVIL ENGINEERS AND ARCHITECTS.

J. E. WOOD begs respectfully to inform Gentlemen engaged in the above profession, that he undertakes Engraving on any Metal, and Printing Architectural and Mechanical Subjects of every description, cheaply, and will be happy to wait upon Parties about to illustrate their Works and Inventions with specimen Prints of Machines, Buildings, Maps, Plans, &c.; having been engaged with parties in illustrating works of high repute in the profession, he feels confident that any subject of the above nature placed in his hands will meet with all possible care and attention.

289, High Holborn.—June 11th, 1846.

ENCAUSTIC, VENETIAN, and other PATENT TILES and MOSAIC PAVEMENTS may be purchased at MINTON and Co.'s warehouse, 9, Albion-place, Surrey side of Blackfriars-bridge.—Wyatt, Parkes, and Co., Agents. The above tiles have lately been considerably reduced in price.

N.B. An assortment of plain and ornamental door furniture, slabs, and tiles for fire-places, &c.

ORNAMENTAL TILES FOR COVERING BUILDINGS.

ROBERT BROWNE'S newly-invented CURVED ITALIAN TILES, for which invention the Society of Arts and Sciences awarded a medal. The Gothic Grooved Ridge Tile, with vertical ornaments, invented by R. B. in 1840; also a variety of plain Gothic Ridge Tiles adapted for tile or slate coverings; ornamental Plain Tiles of various patterns.

Tiles form in winter a warmer and in summer a cooler covering than slates or metal, and may be burnt of any desired colour. Address ROBERT BROWN, Tile Works, Surbiton Hill, near Kingston, Surrey.

DAVEY'S PATENT SLATE RIDGES and HIPS are very superior in appearance to lead, as well as more durable and much cheaper, and are admitted to be the most valuable articles for the purpose hitherto invented. They consist of two side pieces and a roll, either united together to form one solid piece, or in separate parts, and in lengths of from four to six feet. The roll is made of various sizes, perfectly round, and in the strongest way of the slate. They may be purchased of the patentee, W. DAVEY, Broad Quay, Bath, or of any slate dealer in London or the country. Parties ordering a cargo of roofing slates may procure these ridges at the cheapest rate from Mr. JAMES WYATT, Port Penrhyn, Bangor (where they are manufactured), of whom and of the patentee further particulars and prices may be obtained.—Be particular to order DAVEY'S Patent.

HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

The TILERIES, TUNSTALL, STAFFORDSHIRE, are near the centre of England, whence boats are sent direct to any inland place; or to the Mersey for the coasts, the colonies, and elsewhere.

PAVING, 2s. 9d. PER SQUARE YARD Basements, Foot walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, 15, WHARF-ROAD, CITY-ROAD.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen at 27s. 6d. per ton.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced.

I. FARRELL, Secretary.
Seyssel Asphalte Company.

Stangate, near Westminster Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, it may be mentioned, that it has come to the knowledge of the Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

TO ARCHITECTS, BUILDERS, &c.

GAS LAMPS, GAS BRACKETS, GAS PILLARS, BURNERS, &c. &c. In calling the attention of architects, builders, &c., to their assortment of Gas Furniture in general, C. DEBAUFER and SON respectfully announce they continue to fit up premises of every description on the most approved and newest system of gas fitting. An experience of forty years justifies us in making the above assertion.—P.S. Country orders attended to with dispatch.

10 and 11, Creed-lane, St. Paul's.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. GEO. and THOS. WALLIS have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

IRON BRIDGES, PIERS, &c.

*** For the Numerical Explanation of DREDGE'S PRINCIPLE, see the "Mechanics' Magazine," No. 1172.

THIS system removes from the Arch to the horizontal line the horizontal force of the whole Bridge, which makes the roadway as powerful as the arch itself, and the arch, with half the material, more than double its original power. The pressure on the key-stone of the arch is the horizontal force of a Bridge, which acts directly on that point as a dead load of self-destruction; and it has thrown down, within the last eighteen months, nearly sixty arches of Viaducts and Bridges.

EXAMPLE:—The Menai Bridge, whose depth is 1-14th of its length, and the suspended weight 800 tons, its horizontal force is 2,800 tons of self-destruction on the centre; hence it would require but a small portion of the material and cost of that bridge to construct one over the Menai Straits on this plan, that would possess far greater power and stability than the present structure.

This principle has been fully tested nearly ten years, by the construction of fifteen public bridges for the Government and others in Great Britain. It is also established in India.

Bath, 3rd April, 1846.

SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS,

Manufactory, 96, Regent-street, and 131, Chancery-lane.

THE Patentee can confidently recommend these Shutters both for security and durability. The edges being sheathed with IRON, and the cost little more than common shutters, their construction so simple, that the largest establishment can be opened or closed in a few moments with the greatest possible ease without the use of machinery. Their superiority over other Revolving Shutters consists in being made without metal hinges, consequently cannot rust, buckle, or get out of order, and are equally safe. W. SNOXELL will have much pleasure in giving reference to numerous establishments where they are fixed, having on all occasions given the greatest satisfaction.

REDUCTION IN THE PRICE OF

BUNNETT AND CORPE'S

PATENT REVOLVING IRON SHUTTERS.

THE validity of this Patent being completely established, the Patentees have much pleasure in stating that the very extensive demand, and the employment of improved machinery in the manufacture, have given them an opportunity (of which they gratefully avail themselves) of making a considerable reduction in the price of this well-known and tried invention, thereby rendering them the cheapest as well as the best iron shutters in use. Every improvement suggested by practical skill and most extensive application has been adopted, and no effective REVOLVING IRON SHUTTER can be constructed without infringing B. and C.'s patent. The worm and wheel, as patented by them, being the only safe, durable, and efficient mode of raising and lowering such shutters, these shutters can be applied horizontally, either above or below the window, or vertically, as introduced by BUNNETT and CORPE, in some of the largest establishments: they are made with bent or corrugated laths, if required.

BUNNETT and CORPE also manufacture

REVOLVING WOOD SHUTTERS,

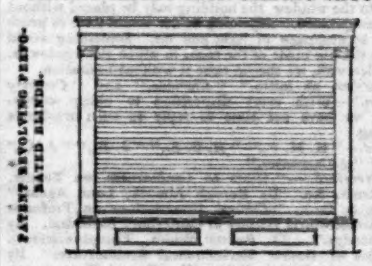
with their patent raising machinery, or with counterbalance weights, and with proper metallic hinges, without which no shutters can be safe or durable.

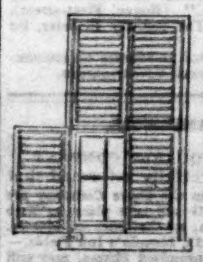
BUNNETT and CORPE are likewise Patentees and Manufacturers of METALLIC SASH-BARS, MOULDINGS, &c., IN BRASS, COPPER, OR ZINC, FOR SHOP FRONTS, WINDOWS, SKYLIGHTS, AND VARIOUS OTHER PURPOSES.

Shop Fronts fitted in a superior manner with Iron Shutters, Patent Brass or Zinc Sashes, Moulded Engraved Stall Board Plates, best Plate Glass, and internal Brass Fittings of all kinds, on the most advantageous terms. Estimates given and contracts taken in Town or Country.—All kinds of metal works executed to any design. Metal Drawing, Rolling, and Stamping for the Trade. OFFICE, 26, LOMBARD-STREET, LONDON. WORKS, at DEPTFORD, KENT.

IMPROVED PATENT CONVEX IRON REVOLVING SAFETY SHUTTERS.

PATENT SAFETY IRON SLIDING SHUTTERS.





The attention of Architects, Builders, Blind Makers, and the Trade generally, is particularly requested to the IMPORTANT patented IMPROVEMENTS in the above enumerated Articles, and inspection invited, at the Manufactory of the Patentees, R. HOWARD and Co., 115, Old Street, London; or at the Licensees.

Engravings and Prospectuses may be had at the above address, or will be forwarded on application.

The great importance of STRENGTH and STIFFNESS in the Laths of REVOLVING IRON SHUTTERS, when required for SECURITY, is so obvious, that it is only necessary to point out the fact that the PATENT CONVEX LATHS ARE 12 TIMES STRONGER THAN THE ORDINARY FLAT LATHS (as shewn by the engravings and prospectus), to ensure their general adoption.

REVOLVING IRON SHUTTERS MADE OF THE COMMON FLAT LATHS, AT A VERY CONSIDERABLE REDUCTION OF PRICE.

CAUTION.—The Patentees beg to caution all persons against Making or Using BENT LATHS for REVOLVING IRON SAFETY SHUTTERS, so as to obtain increased strength or stiffness; as they thereby render themselves liable to legal proceedings for infringing this patent.

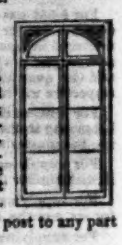
Licenses Granted.

BUILDERS and the PUBLIC about putting in NEW WINDOWS or altering old ones, should inspect HERRING'S new PATENT SASH, before they go to any expense, which is universally being adopted in town and country.—Exhibited daily at the Patentees, 14, Kingsgate-street, Holborn, also at JOHNSON and PASK'S, Sash-makers.

SHOP FRONTS, SASHES AND FRAMES, DOORS, &c. MADE FOR THE TRADE.

JOHNSON & PASK,
1, ANWELL STREET,
Clerkenwell,

Beg to state that they continue to make Sashes, glazed complete, at 10½d. per foot; also, Shop Fronts to any design, and with the best British plate-glass. Every description of joinery on the lowest terms, and of the best materials and workmanship.



A full list of prices forwarded by return of post to any part of the country.

DUTY OFF ORNAMENTAL WINDOW GLASS.

CHARLES LONG begs to inform his Friends and the Public, that he can now supply Ornamental Glass from 1s. 3d. per foot superficial; and borders from 9d. per foot, run; and having just built two of the largest Kilns in London, is enabled to execute extensive Orders with unprecedented dispatch, 1, King-street, Portman-square.—Terms, Cash only.

BRITISH and FOREIGN SHEET GLASS for Horticultural purposes, &c., may be had at JAMES BROMLEY'S, 313, Oxford-street, London, at the following reduced prices:—

In crates, containing about 250 feet, of coarse 13 oz., at 4½d. per foot, or fourth quality, 5d. per foot; ditto, 16 oz. coarse, 5½d.; ditto, fourth quality, 6d.; or cut to any size not exceeding 40 inches long by 10 inches wide at ½d. per foot extra. Also Microscopical Glass, French Shades, Plate and Crown Window Glass.—A discount to the trade.

TO THE PLATE GLASS TRADE.

THE BIRMINGHAM PLATE AND CROWN GLASS COMPANY, "Registered," beg to inform the Trade and Public, that the extension of their Works at Smethwick, near Birmingham, being now completed, their Warehouse, 141, Fleet-street, is now open for the Sale of their Crystal Plate Glass, which will be found to stand unrivalled by that of any other manufactory. They are also in a position to supply Rough Plate of any substance for Skylights or Floorings on the shortest notice.—Orders addressed to B. MOSS, 141, Fleet-street, will be promptly attended to.

SASHES primed, glazed, and sent to any part of London at 6d. per foot.

BUILDERS, PAINTERS, GLAZIERS, and others, supplied with every article used in the trade upon the best wholesale terms.

FOREIGN SHEET 5d. per foot.
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Coloured and Ornamental Glass, Flatted Crown, and Sheet Plate, for Shop fronts, Shew-cases, &c. The largest stock of Cheap Glass in London for HORTICULTURAL PURPOSES.

Dry and Good Colours of the best quality; Brushes Dryers, and every article used in the Trade Warranted.

VARNISHES and GENUINE WHITE LEAD; MILLED LEAD IN SHEETS 22s. per cwt.; Lead Pipe 23s. per cwt. Pumps, Water-closets, Basins, Brass-work, and all materials used by Plumbers.

For complete lists priced.—Address to R. COGAN, WINDOW GLASS, LEAD, and COLOUR WAREHOUSE, 5, Princes-street, Leicester-square, London.

WINDOW GLASS, LEAD, VARNISH, and COLOUR MANUFACTORY.—Crown Window Glass, in squares under two feet, 4½d. per foot; glazing, 5d. per foot; sheet glass, 4d. per foot; best white lead, 26s.; seconds, 24s.; thirds, 22s. per cwt.; linseed oil, 2s. 2d.; boiled oil, 2s. 6d.; turpentine, 3s. 9d.; fine oak varnish, 10s.; carriage, 12s.; copal, 14s.; body copal, 20s.; gold size, 10s.; paper varnish, 10s.; linseed oil putty, 7s. 6d. per cwt. per firkin; patent dryers, 42s.; black paint, 28s.; lead colour, 24s.; Oxford ochre, 42s. per cwt.; best pan water-closet, 34s. complete; ¾-brass cocks, 2s. 8d. each. Milled sheet lead, patent pipe, beer-machines, tapping-cocks, and brushes and colour of every description. Thomas Millington being the manufacturer, can supply a much better article than most other houses. Address, THOMAS MILLINGTON, 97, Bishopsgate-street Without, London.—Established upwards of 90 years.

OHIO MELODISTS.—ROYAL ADELAIDE GALLERY.—Every evening at half-past Eight o'clock.—These inimitable artists continue to delight crowded houses by the drollery of their personation of negro life. The Concert conducted by Mr. A. Sedgwick. Vocalists—Miss Stuart and Mr. Bingo. Also the juvenile dancers, Miss Palser and Master Waite. A large model of a new method, invented by Mr. Austin, for obviating the difficulties of the Break of Gauge on Railways. Nickel's Compressed Air Railway, Lecture on Chemistry, Microscope, Dissolving Views, and Chromatrope daily. On Tuesday, Thursday, and Saturday, at Three o'clock, Major Beniowski's Lecture on Artificial Memory, and on Tuesday and Friday, a Lecture on Phonography. Admission, 1s.

ROYAL POLYTECHNIC INSTITUTION.—Dr. RYAN'S new and interesting Lecture on the Chemistry and Philosophy of Diving, at half-past three daily, and on the Evenings of Mondays, Wednesdays, and Fridays. Prof. Backhoffner's Lectures on Natural Philosophy, with brilliant experiments, daily. Macintoshe's Revolving Engine, Coleman's Patent Locomotive Engine for ascending and descending inclined planes, Farrell's Archimedean Railway, the Atmospheric Railway, an Envelope Cutting Machine, all in action. New Dissolving Views. Portraits of distinguished Men in the Government and Army of Lahore, magnified by the Opaque Microscope. The Oxy-hydrogen Microscope, exhibiting a fine Collection of Living Objects, &c. &c.—Admission, 1s.; Schools, Half-price.